Kuznets, Simon Smith

Working Paper

Demographic Components in Size-Distribution of Income

Center Discussion Paper, No. 226

Provided in Cooperation with:
Yale University, Economic Growth Center (EGC)

Suggested Citation: Kuznets, Simon Smith (1975) : Demographic Components in Size-Distribution of Income, Center Discussion Paper, No. 226, Yale University, Economic Growth Center, New Haven, CT

This Version is available at:
https://hdl.handle.net/10419/160154

ECONOMIC GROWTH CENTER

YALE UNIVERSITY

Box 1987, Yale Station
New Haven, Connecticut

CENTER DISCUSSION PAPER NO. 226

DEMOGRAPHIC COMPONENTS IN SIZE-DISTRIBUTIONS OF INCOME

Simon Kuznets

April 1975

DEMOGRAPHIC COMPONENTS IN SIZE-DISTRIBUTIONS OF INCOME*

1. Introduction

An estimate of the distribution of income or wealth, by size-classes, among the households or families of a country, is a highly useful, if complicated, economic measure. It should shed light on problems of poverty or economic deprivation, at one end, and of extreme concentration of wealth and income, at the other. It should suggest sectors within the economy and labor force that represent inadequate investment in human capital, or inadequate use of such capital already invested. It should provide a base on which the flow of income and accumulation of wealth could be linked to the allocation of income and wealth by use, in household consumption on goods of differing income elasticity of demand and on savings and investment in different channels. And if available for comparison, over time or among countries, such estimates should reveal the connections between economic growth and the changing structure of inequality in the distribution of income and wealth, and the association between different economic and social structures and the scope and

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*Revised draft of a paper originally submitted at a conference on Income Distribution, Employment, and Economic Development in Southeast and East Asia, held in Tokyo on December 16-20, 1974, under the auspices of The Japan Economic Research Center (Tokyo) and The Council of Asian Manpower Studies (Manila). I am indebted to Professor Gustav Ranis and participants in the conference for valuable comments on the original draft.

variety of inequality in income and economic power.

But because size-distributions of income are such multi-faceted measures (and we concentrate on them, although much of what will be said applies also to size-distributions of wealth), we meet formidable difficulties in making them fully relevant to some of the major analytical purposes for which we want them. The family, or household, must be the basic recipient unit in these size distributions: the individual is not an adequate recipient unit, because much of the non-employee type of income cannot be assigned to single individuals, and because they, unlike the families, are not the major decision makers on long- and short-term economic actions. To be sure, to establish discrimination or inequities in compensation, earnings data for single individuals would be required--with all the adjustments for differences in education, experience, and relevant productivity-affecting characteristics. But to gauge either poverty or wealth, to measure inequities in the gains from growth among various recipient units, or to trace the connection between income and consumption, we need size-distribution measures. Here we need the household or family, the unit that makes decisions on income-getting and income-spending.

But households, or families, are fairly complex and variable units that are the focus of a wide variety of effects--so that any analysis of the size-distribution of income among them must deal with several groups of components. These must be distinguished for interpretation and analysis. The resulting difficulties of meaningful interpretation are present, even when the data are statistically complete and adequate--although the formulation of the analytical distinctions often reveals deficiencies and

possible errors in the data.

For this reason we suggest, in this introduction, a brief and preliminary classification of effects that are reflected in a size-distribution of income among families and households. We call these groups of effects, for short, components in the size distribution; and attempt to view them as they would be reflected in a size distribution for a single country in a single year.

The first relevant distinction is that between the short- and the long-term components in the data. And the meaning of the former should become clear if we further distinguish within it between the accidental or random (not in the strictly technical sense) and conjunctural, i.e., depending on the short-term economic or social conjuncture. An illustration of the former is the case of a family or household affected in a given year by some negative incident, e.g., illness of an economically active member; or by a positive accident, e.g., a single, unusually profitable business transaction. An illustration of the conjunctural component is the case of a single year's crop failure or success, affecting a large number of farm families or households although not all of them equally; or a favorable export situation affecting, again unequally, a large number of families or households connected with the export industries. An illustration even more relevant here is provided by the post-World War II experience in many countries, in which the destruction of physical assets during the war, and the institutional reforms immediately after (land reform, nationalization of some assets, etc.) may have reduced income inequality--followed by a possible widening

of such inequality as economic growth, with its differentiating effects, forged ahead. Yet this short-term movement, possibly offsetting the narrowing of income inequality from the pre-war years to those immediately following the war, should not be confused with the long-term effects of economic growth on the size-distribution of income. The operative distinction between the accidental and conjunctural components is that the accidental disturbances, different for individual families, would presumably cancel out in averaging for large groups of units; but the conjunctural disturbances, affecting a large number of families at once, would not be removed by such averaging of numbers--although they might be eliminated by averaging over long periods. And within both accidental and conjunctural changes one might distinguish between shorter and longer periods over which they would cancel out, but both short compared with the trends dominant in economic growth.

Since our interest is in relations between size-distribution of income and economic growth, our main concern should be with long-term components in the size-distribution; and we will tend to put the short-term components aside, eliminating them by some kind of averaging. This is a permissible strategy in that a clear view of long-term components or trend values is needed to suggest the plausible connections and directions of analysis. But the short-term components must not be completely neglected, for two reasons. First, their presence in real life may require adjustments that have long-term effects. Thus, the exposure of farmers in the less developed countries to high short-term risks connected with crop fluctuations and lack of reserves may produce attitudes and policies of

effect on long-term trends. Likewise, in the developed economies, the desire to protect the lower income groups against damaging short-term risks results in creation of government and private insurance institutions, which then have long-term effects on savings habits of households and on the flow of savings into different investment channels. Second, people live in the present, and short-term deviations from the longer-term trends may be important--particularly if reserves for offsetting undesirable effects are limited. One would, therefore, wish that both the trends and the deviations from them could be considered jointly. Our separation of the two, and the concentration--in the discussion here--on the long-term components in the size-distribution of income is a matter of research strategy and analytical expediency.

The preliminary classification of these long-term components would distinguish three broad groups: demographic; economic and social; individual. The first, to be illustrated at length below, are those aspects of the processes of birth, family formation, family growth and contraction, family dissolution and death, which constitute the life cycle of an individual and family--and which are of obvious effect on the income of a household or family in the size distribution. Economic and social components are those with which we are most familiar, and in which we are most directly interested. The production sector attachment of the head of the family or the unrelated individual; the status within the labor force; the occupational range, associated with investment in human capital, are all long-term characteristics and provide the basis

for formation of distinct economic groups, with average income levels quite different and conspicuous within the size-distribution of income. But there are also social groupings, affecting economic and income levels. Racial, ethnic, tribal and sub-national groups may occupy different positions on the social scale--again long-term characteristics of obvious effect on group averages within the size-distribution of income--whether because of discrimination, or of historically determined patterns of social and economic behavior, or of different length and character of experience within the country of observation. Finally, some long-term influences on the life and economic success of individual families (and of their heads) cannot be explained in terms of the demographic, or economic and social, group variables. For example, families can differ, and in the long run, because some may have heads or members who possess an unusual genetic endowment, either positive or negative; an endowment that influences the course of the life cycle of the family and has a long-term effect on the level and trend of the family's income. Or some long-lasting combinations of circumstances may affect the given family in its long life cycle and may not be reducible to affiliation with demographic or socio-economic groups, e.g., unusual cohesiveness of members within the family that affects its size and economic attainment. We refer to these influences as the individual component, because in our present state of knowledge, there are no ex-ante identifiable groups that we can distinguish. Thus, while the first two sets of components are reflected largely in group averages based on demographic, economic, or social characteristics, the individual component is reflected in within-group (i.e.

within the demographic, economic, or social group) variance of individual households in their long-term income trends (not in effects of short-term disturbances).

Obviously, the classification just suggested is preliminary. In the first place, the number of groups of long-term components is a matter of research expediency, to be tested by application in analysis. Thus we can find subcategories within the demographic component, depending upon the degree of human discretion which differs when we compare marriage and family formation with old age and death. We also can separate the economic from the social component, and further subdivide the latter. Second, and more important, however we form the classes, the components in them will be closely connected, and questions will be raised as to whether a given group is demographic or economic, or somehow joined. In particular, with the recent extending application of micro-economics to the formation and life of families, an economic explanation of differential fertility would mean that having children (a demographic process) would be put into the same category as investment in education of parents (presumably an economic process). Similarly, discrimination against a minority racial or ethnic group possesses strong economic elements; and one may question whether the groups are formed by some preemptive monopoly based on overt group differentiation. And yet one must not exaggerate the importance of such connections, and underestimate the value of identifying, at the base of group distinctions in income, components that are sufficiently different to be kept apart in effective analysis. If we find households or families changing in size, with changes in age of head, and observe that these

differences in size affect income in the size-distribution of income among households, the demographic component is clearly of importance. If we find differentials among races, with the same demographic and economic characteristics, the social component is of some importance.

At any rate, for our purpose this classification seems useful, as a framework for the particular group of components on which we concentrate. We are dealing with the demographic components largely because they have been neglected, at least by economists; and because they seem to me to require careful attention before the effects of economic components can be properly observed within the customary size-distribution of income.

The discussion that follows is illustrative in that it aims to define the several demographic components, and illustrate them with realistic data taken from both developed and less developed countries. In this illustrative use, little attention is paid to definitional and analytical problems in the statistics related to the income totals. Although it would have been desirable to deal critically with the latter also, the effort to cover the demographic components even illustratively left no resources for dealing with the income side. Even with the demographic components, we did not cover all of the countries or aspects that could and should be covered; nor did we calculate elaborate measures of income inequality for the purpose. The attempt is limited to specifying the relevant demographic characteristics, and illustrating their effect on our interpretation of commonly observed features of the usual size-distribution of income among household or families.

2. Age of Head and the Family Life Cycle

Table 1 shows, for the United States in 1972, differentials in per family or per individual income among families and unrelated individuals of differing age and sex of head or individual. The income is limited to money income, but in that year only 4.6 percent of families and less than 3 percent of unrelated individuals were on farms (see Table 18 of the source, pp. 50ff). While income refers to calendar 1972, the demographic data are for March 1973.

Three topics are raised by the table: (a) the distinction between family, household, and an unrelated individual; and the role of unrelated individuals (or single-person households) in the life cycle of a family; (b) the life cycle of a family, as suggested by the movement of per family income with changes in the age of head; (c) the implications of the income differentials by the sex of the head of family.

(a) As defined in the data for the United States, the family is a unit formed by blood, marriage, or adoption ties, on the one hand; and joint residence, on the other. The joint residence requirement means that members of a family living separately are treated as unrelated individuals. The unrelated individuals may reside in group quarters (five or more living in lodging houses, military barracks, college dormitories, etc.), or with a family to which they are not related, or alone. The family is then essentially a family household; and among unrelated individuals only what the source defines as "primary" individual (living alone, or as the head of a household where nobody is related to him) constitutes a household (see p. 13 of the source cited in the notes to Table 1). The total number of house-

Table 1 Differentials in Money Income per Family and Unrelated Individual, by Age and Sex of Head or Individual, United States, 1972.

	Age Classes	Families			Unrelated Individuals			Total
		Male Head	Female Head	Total	Male	Female	Total	
		(1)	(2)	(3)	(4)	(5)	(6)	(7)
Share in Total Number of Units (%)								
1.	14-24	5.0	0.9	5.9	1.8	1.7	3.5	9.4
2.	25-34	14.8	2.0	16.8	2.1	1.1	3.2	20.0
3.	35-44	13.2	1.8	15.0	1.2	0.7	1.9	16.9
4.	45-54	14.1	1.7	15.8	1.1	1.4	2.5	18.3
5.	55-64	10.9	1.3	12.2	1.1	2.7	3.9	16.1
6.	65 & over	9.0	1.6	10.6	2.0	6.7	8.7	19.3
7.	Total	67.1	9.3	76.4	9.4	14.2	23.6	100.0 (71.18)
Income per Family or per Unrelated Individual ($ 000s)								
8.	14-24	8.69	3.21	7.89	4.70	3.22	4.00	6.44
9.	25-34	12.58	4.99	11.70	8.39	6.67	7.79	11.08
10.	35-44	15.44	6.80	14.39	9.56	6.36	8.42	13.74
11.	45-54	16.61	8.21	13.69	8.24	5.35	6.63	14.45
12.	55-64	14.36	8.68	13.77	6.65	4.74	5.23	11.71
13.	65 & over	8.38	8.22	8.36	4.03	3.27	3.44	6.15
14.	Total	13.42	6.86	12.63	6.64	4.16	5.14	10.86
Share in Total Income (%)								
15.	14-24	4.0	0.3	4.3	0.8	0.5	1.3	5.6
16.	25-34	17.1	0.9	18.0	1.6	0.8	2.3	20.3
17.	35-44	18.9	1.1	20.0	1.0	0.4	1.4	21.4
18.	45-54	21.6	1.3	22.9	0.8	0.7	1.5	24.4
19.	55-64	14.4	1.0	15.4	0.7	1.2	0.9	17.3
20.	65 & over	7.0	1.2	8.2	0.8	2.0	2.8	11.0
21.	Total	83.0	5.8	88.8	5.7	5.5	11.2	100.0 (773.16)

Table 1 -- continued

Notes: The data are taken or calculated from U.S. Bureau of the Census, Current Population Reports, Series P. 60, no. 90, "Money Income in 1972 of Families and Persons in the United States," U.S. Government Printing Office, Washington, D.C. 1973, Table 19, pp. 51-57.

A family, as defined in the source, is "a group of two or more persons related by blood, marriage, or adoption and residing together" (p. 12) ... "a lodger and his wife not related to the head of the household or an unrelated servant and his wife are considered additional families, and not a part of the household head's family" (p. 12).

"The head of a family is usually the person regarded as the head by members of the family. Women are not classified as heads if their husbands are resident members of the family at the time of the survey." (p. 13)

Unrelated individuals are "persons 14 years old and over (other than inmates of institutions) who are not living with any relatives." (p. 12). He or she may constitute a one-person household, or may be part of a household (unrelated to him or her), or may reside in group quarters such as a rooming house (examples--a widow living alone or with others unrelated to her, a lodger, or a servant, none related to the head of the household or to anyone else in it).

Entries in parentheses in lines 7 and 21, col. 7 are the total number of units (in million) and total income (in billions of dollars).

Totals will not check because of minor errors of rounding.

holds is then the sum of families and primary individuals--the latter, in March 1973, comprising 13.99 million out of a total of unrelated individuals of 16.81 million (Table 26 of the source, p. 75).

Two observations may be made concerning the unrelated or primary individuals. First, they constitute a substantial proportion of total units in the size-distribution of income in the United States: unrelated

individuals account for almost a quarter of total units (23.6 percent, see line 7, col. 6): and single-person households would account for 13.99 out of 68.4 million households, or 20 percent. The proportions of such units in the less developed countries are far lower. Thus, in Taiwan in 1972, single person households accounted for 3.3 percent of all households (see Table 13 below, line 2, col. 1). In the Philippines in 1971, the proportion of single person households among all households was less than 2 percent (see Table 16 below, line 2, col. 1). This contrast in the proportion of single-person households between the developed countries (DCs) and the less developed countries (LDCs) can be easily documented on a wider scale. But we can take it as found, and inquire what it means for the comparability of size-distributions of income between the two groups of countries, and for the changes over time in the size-distribution of income as the LDC pattern gives way gradually to the DC pattern.

The answer is suggested partly by the second observation,--viz., that the per unit incomes of the unrelated individuals (or single person households) are very much below--at the same ages of head--the per unit income of multi-person families or households. This is shown clearly in Table 1, which permits comparison not only for the over-all averages, but also by age classes. Income per unrelated individual is, for each age class, no more than six-tenths of the income per family, the ratio dropping markedly in the more advanced ages. For the group as a whole, the per individual income is about four-tenths of the per family income (line 14, columns 6 and 3). In the LDCs also the income of a single person household or family is much lower than that of multiperson families--between

45 percent in Taiwan in 1972, and six-tenths in the Philippines in 1971 (see Tables 13 and 16 below).

With this much lower income per unit for the unrelated individual or single person household or family, a larger proportion of them would--all other conditions being equal--produce a wider spread in the usual size-distribution of income among families or households. In the comparison between DCs and LDCs, the size-distribution for the former would show greater inequality, largely because of the higher proportion of single-person units. In the shift over time in the transition from the LDC to the DC pattern inequality would widen, for the same reason (as was observed for Japan in the post-World War II period, in Mr. Wada's paper).

What does this higher proportion of single-person units in the DCs represent? A glance at the age and sex distribution in Table 1 suggests a plausible answer. To begin with, columns 4 and 5, lines 1-6, indicate that the two major groups are at the young ages, and particularly at the old; and that whereas at the young ages, it is the delay in marriage particularly of males that is weightier than a similar delay in the marriage of females, at the older ages it is the females, presumably largely widows, that are far more numerous than males. Thus, of the 23.6 percent accounted for by single-person units, 6.7 percentage points are in the younger ages (14-34), and as much as 12.6 points are accounted for by units 55 years old or older. And, in particular, females 55 years or older, account for 9.4 percentage points, or almost four-tenths of all the single-person units.

Clearly, later marriage for females and males is part of the institutional pattern in the DCs, much less prevalent in the LDCs; and the separate households--rather than retention within a several generations family--is an institutional practice typical of the DCs, not prevalent in the LDCs. It is not that the numbers of persons in these ages are so much greater in the DCs, proportionately to total population, than they are in the DCs. It is that the different economic and social structure leads to a longer period of pre-marriage life away from the parent family; and, in particular, to separate households for the aged (even single, let alone still two-person groups) to a much greater extent than was the case in the DCs in the past, or is in the LDCs today. In that sense, the higher proportion of the single person units in the DCs reflects a different life cycle pattern of the family--in the timing of the movement into it of members of parent families, and in the timing of the separation of older generation households from their children's families. The resulting difference in the size distribution of income among households and families does not reflect differences in the life-time incomes of families or persons--but rather differences in timing of the phases within the life cycle, and in the separation of new family units from the old. This is a matter of cardinal importance, for it shows how cross-section patterns of size distribution can mislead with reference to long-term trends or differences in the distribution, if the latter is to portray changes or differences in the distribution of life-time incomes.

(b) We turn now to changes in income per unit with changes in the age of the head of the unit--as a reflection of some major movements that occur over the life cycle of the unit. In observing in this connection the

income differentials in lines 8-13 of Table 1, one should keep in mind that this is a cross-section--and that the averages therefore represent groups taken from different cohorts. The picture of a life cycle refers to the movement over time, from youth to maturity to retirement, of a single rather than of successive cohorts.

As the data stand, and we consider here the families and the individuals separately, the per unit income for the dominant group, families with male heads (over two-thirds of all units, almost nine-tenths of all families) shows a rise from $8.7 thousand for the youngest group to a peak of $16.6 thousand for the 45-54 age class, and then declines to $8.4 thousand for the 65 and over class. Since the older classes represent older cohorts, possibly less well-trained and experienced than the now younger cohorts will be when they reach those ages, the cohort life-cycle pattern would show a greater upward trend than that in Table 1: a movement to higher levels at the peak, even if in the same age class; and a decline to levels for the older ages that might be higher than the initial levels.

The inclusion of single-person units widens the amplitude of the life-cycle patterns. It depresses particularly the averages for the younger and older groups, and has less effect on the averages for the intermediate age-classes, which are characterized by higher incomes. Thus both the rise to the peak in age class 45-54 and decline to the terminal trough in ages 65 and over, are greater relatively for all units than they are for families alone (lines 8-13, columns 7 and 3).

Disparities in income per household, associated with differences in age of head, contribute to inequality in the size-distribution of income among households; and the contribution is a function partly of the income disparities by age of head, partly of the proportions among all households of classes with heads of different age. Simple measures are presented in the next section, largely to illustrate this component in the size-distributions of household income in several countries. At this juncture, we would like to stress only two broader points. First, the different time patterns of the life cycle of income of households, by age of head, are compatible with identical total lifetime incomes of these households. The income disparities by age of head introduced into the cross-section patterns of the size distribution of income do not reflect any differences in life-time incomes; and if the latter do differ, these disparities constitute an additional element of variance not representing secular income levels. Second, the contribution to income inequality of this particular demographic component may vary substantially, in the course of a country's economic growth or among countries, at several phases of economic development. Different occupations and activities are characterized by life cycle patterns of earning and income that differ widely--and various combinations of such occupational life cycle patterns of income would clearly affect inter-temporal or inter-spatial comparisons of size-distributions of income among households. Part of the time-pattern of family income associated with age of head may be due to changes in the size of the family, and correlatively in the number of earners, who may be added usually at certain age spans of the family heads. Here again differentials in population

growth and formation of families should result in differences in contribution of the age-of-head variable to size-distributions of income at different phases of economic growth and modernization. Finally, the proportions of the several age-of-head classes among all households, particularly at the extremes (very young and very old) do, as already indicated, reflect patterns of family formation and dissolution, that are different for different societies. It follows that the variance associated with the age-of-head variable, while theoretically completely separable from the variance among the long-term, lifetime income levels, is likely to make different contributions to inequality in the customary size-distributions of income among households; and thus affect the meaning of inter-temporal and cross-section comparisons among these customary size-distributions.

(c) Among all the families (excluding unrelated individuals) we segregated in Table 1 those with female heads, who were found to account for 9.3 percent of all units (line 7, col. 3) and 12.2 percent of family units. We could also have distinguished among families with male heads other than those of man with a wife; but these were only slightly more than 2 percent of all units, and, more important, showed an average income per family of $11.66 thousand, not much less than all male head families ($13.42 thousand, see line 14, col. 1). By contrast, families with female heads had an average income of $6.86 thousand or only 51 percent of the average for the families with male heads.

The proportions of families with female heads are particularly high in the United States among the Negro population. Thus the per-

centage of female-head families among all families (excluding unrelated individuals) was 9.7 for the white population, and as high as 34.6 percent for the Negro population (see Table 19 in the source cited for Table 1). But the per family income differentials by sex of head were not too different between Negro and white: per family income for female head families in relation to per family income for male head families were 0.55 for the white population, and 0.51 for the Negro population.

Is this marked difference in per family income by sex of the head due largely to the inability of the female head to secure an income as high as that of the male head? Or do low income families have a greater tendency to lose a male head than higher income families? The latter would mean that low incomes make for family instability, and that the income of the female head is not markedly (if at all) below the income of the male head before he became separated from the family. The former argument would assign the differential largely to the lesser capacity of a female head to earn. Perhaps the valid argument is a combination of the two; but one would need more data, particularly on the incidence of female headship, for a variety of other developed countries.

Some data on household or family income by sex of head are available for less developed countries; and one could pursue this topic further, to illustrate the income effects of yet another demographic component. But the proportions of households with female heads are relatively moderate, and the analysis would require more cross-classifications than are easily available. It seemed expedient to limit discussion and omit the sex-of-head variable from illustration and tentative analysis.

3. Income Differentials by Age of Family Head, Other Illustrations

We have discussed the effects on income differentials of the distinction between families and individuals, of the age of head of family or of individual, and of the sex of family head. We have also suggested the effects of the underlying demographic components on the customary type of size-distribution of income among families or households. We now turn to a few illustrations. The discussion is illustrative, and its exploratory character must be emphasized. One reason for the limitation is that the calculational effort involved in doing a more substantive study is beyond me. More important, the coverage of the income amounts cannot be assumed to be adequate and comparable, particularly when we deal with inter-country comparisons. Yet we had to use the data as given, for we were in no position to check them for adequacy and comparability.

The measure of inequality used here is deliberately kept simple, to reduce computation. However, even the simplest measures reveal enough, provided that the underlying classifications and arrays are defined in conformity with the analytical purposes in mind. More elaborate measures would only obscure, if no attention were paid to the different analytical components in the usual size-distribution of income.

The measure is calculated in Table 2 for the distribution for the United States in 1972 of families or total units by income size, and for the income differentials among classes of families or units by age of head. It is the sum of the differences, signs disregarded, between the shares of classes in total income and in total number. We refer to it as TDM, standing for "total disparities measure".

This measure, introduced originally to gauge inter-sectoral inequalities in product per worker (in my paper on industrial distribution of national product and labor force, which appeared as a supplement to the July 1957, vol. II, no. 4, issue of Economic Development and Cultural Change) has several advantages, in addition to its simplicity. First, for each class, the difference between its share in number and its share in total income (or product, or some other total being distributed among the number), is the relative deviation of per unit income of that class from the over-all per unit income, weighted by the size of that class. Thus, -3.3, the entry in line 5, column 1, is the product of the deviation of relative income (0.07 - 1.00 = -0.93), multiplied by the weight of that class (3.5 percent), or -3.3. Likewise, 13.4, the entry in line 5, column 8, is the product of the deviation of relative income per family in that class from the countrywide (2.84 - 1.00 = 1.84), multiplied by 7.3. The measure thus is the total of deviations of relative income per family (from the countrywide) in the successive classes, weighted by the proportion of each class in the country wide total of numbers.

Second, it is based on the shares in number and in income as they are given, or as they can be arranged to conform to the analytical problem, without obscuring them in cumulative arrays, partition values, and the like. It, therefore, draws attention to these shares, and reveals the parts of the distribution in which the greatest contributions to disparity lie. Thus in Panel B, it is easy to see that the major contribution to disparities generated by the age of head component lies, in the family distribution, in just three of the six classes--the very young, the very old, and the peak age group of 45-54.

Table 2 Income Disparities, Families or Total Units, Classified by Income Classes, and by Age of Family Head (or Unrelated Individual), United States, 1972

A. Classes of Families and Unrelated Individuals by Money Income Per Family or Per Individual

	Income Classes ($000s)								Total
	Below 2.0 (1)	2.0-3.99 (2)	4.0-5.99 (3)	6.0-7.99 (4)	8.0-9.99 (5)	10.0-14.99 (6)	15.0 24.99 (7)	25+ over (8)	(9)
1. Average income ($000s)	0.90	3.04	4.98	6.98	9.01	12.26	18.63	35.74 (32.49)	
Families									
2. Share in income (%)	0.2	2.0	3.9	6.0	8.0	25.3	33.9	20.7	100.0 (684.5)
3. Share in number of families (%)	3.5	8.2	9.9	10.8	11.2	26.1	23.0	7.3	100.0 (54.4)
4. Relative income, per family	0.07	0.24	0.39	0.55	0.72	0.97	1.48	2.84	1.00 (12.6)
5. Disparity in shares	-3.3	-6.2	-6.0	-4.8	-3.2	-0.8	10.9	13.4	48.6 (0.345)
Total Units (Families and Unrelated Individuals)									
6. Share in income (%)	0.8	3.5	5.1	6.9	8.6	24.8	31.3	19.0	100.0 (773.2)
7. Share in number of unrelated individuals (%)	27.8	26.6	14.9	10.5	7.9	9.5	2.8	1.0	100.0 (16.8)
8. Share in number of all units (%)	9.2	12.6	11.1	10.8	10.4	21.9	18.2	5.8	100.0 (7.2)
9. Relative income, per unit	0.08	0.28	0.46	0.64	0.83	1.13	1.72	3.28	1.00 (10.9)
10. Disparity in shares	-8.4	-9.1	-6.0	-3.9	-1.8	2.9	13.1	13.2	58.4 (0.401)

Table 2--continued

B. Classes of Families (or Total Units) by Age of Family Head of Unit

	Age Classes						Total
	Below 25 (1)	25-34 (2)	35-44 (3)	45-54 (4)	55-64 (5)	65 & over (6)	(7)
Families							
11. Share in income (%)	4.8	20.3	22.4	25.8	17.5	9.2	100.0
12. Share in number of families (%)	7.8	22.0	19.6	20.7	16.0	13.9	100.0
13. Relative incomes, per family	0.62	0.92	1.14	1.24	1.09	0.66	1.00
14. Disparity in shares	-3.0	-1.7	2.8	5.1	1.5	-4.7	18.8 (0.12)
Total Units (Families and Unrelated Individuals)							
15. Share in income (%)	5.6	20.4	21.4	24.4	17.3	10.9	100.0
16. Share in number of units (%)	9.4	20.0	16.9	18.3	16.1	19.3	100.0
17. Relative, income, per unit	0.59	1.02	1.27	1.33	1.08	0.57	1.00
18. Disparity in shares	-3.8	0.4	4.5	6.1	1.2	-8.4	24.4 (0.159)

Table 2--continued

C. Classes by Money Income, of Families and Units Excluding Heads Younger Than 25 and 65 and Over

	Income Classes in Thousands of $								Total
	Below 2.0	2.0-3.99	4.0-5.99	6.0-7.99	8.0-9.99	10.0-14.99	15.0-24.99	25 & over	
Families									
19. Share in income (%)	0.2	1.2	2.6	4.8	7.1	25.8	36.0	22.3	100.0
20. Share in number of families (%)	2.8	5.2	7.0	9.4	11.0	28.9	27.1	8.6	100.0
21. Disparity in shares	-2.6	-4.0	-4.4	-4.6	-3.9	-3.1	8.9	13.7	45.2 (0.313)
Total Units									
22. Share in income (%)	0.4	1.7	3.3	5.5	7.9	25.7	34.6	20.9	100.0
23. Share in number of units (%)	5.3	7.1	8.5	10.1	11.2	26.7	23.6	7.5	100.0
24. Disparity in shares	-4.9	-5.4	-5.2	-4.6	-3.3	-1.0	11.0	13.4	48.8 (0.348)

Notes: The underlying data are all from the source cited for Table 1 above, or based on that table.

Lines 1 and 2 are taken or calculated from Table 1 of the source, p. 27, which relates to families alone. We assumed that for each income class, except the top, the average for unrelated individuals is the same as for families. The average for the top income class for individuals was derived from the income total for that group. The average for the top class of families is 10 percent higher than this derived average (see entry in parentheses, line 1, col. 8).

Table 2--continued

Entries in parentheses in lines 2 and 6, column 9, refer to total income (in billions of dollars); in lines 3.7, and 8, column 9, to numbers of families, unrelated individuals, and total units (in millions); in lines 4 and 9, column 9, to money income per family, or per unit (in thousands of dollars).

Panel C was calculated by omitting from each size-of-income class the families or units whose heads were either below 25 or 65 and over in age; and assuming that this omission did not affect the arithmetic mean incomes for the size-of-income classes. On this assumption, the share of the remaining families or units by size-of-income class was multiplied by the average shown in line 1 to derive distribution of income.

Entries in column 9, lines 5, 10, 21, and 24, and in column 7, lines 14 and 18, are the sums of disparities in shares, signs disregarded--the total disparities measure, or TDM for short. The entries in parentheses are the Gini coefficients. The latter are calculated from the shares in numbers and income as given in the table. A finer breakdown would raise the Gini coefficients somewhat, and may also raise the TDMs.

The TDM has, of course, several limitations. First, like other aggregative measures (e.g., the Gini or Gibrat coefficients) it is a summary that may conceal as much as it reveals. By itself, it says nothing about the extent of poverty or of excessive incomes, or about any other aspect of the distribution except the total (and hence average) disparity. This limitation is mitigated by the retention of the original classes in the distribution, and the emphasis, in the procedure, on the identity of these classes. Second, as Mrs. Kuo pointed out in her comment, the measure is not as sensitive as the Gini coefficient to the income inequalities within long spans in the Lorenz curve. The third, and perhaps most important qualification, is that the measure lacks the property of additivity of

variance found only in normal and near normal distributions and their variance measures. These limitations would call, in a more elaborate discussion, for alternative measures--particularly those using logarithms of income values, and the variance of logs, on the assumption that the income distribution is close to Lognormal. But resources do not permit, nor the occasion warrant, these more elaborate calculations. We have limited the measures to the TDMs, but have also entered the more customary and easily calculable Gini coefficients--leaving further elaboration to studies dealing directly also with the coverage and comparability of the income amounts involved (and not restricted like the present to the problems of the recipient unit).

The findings in Table 2, Panel B, only confirm what we have said, in connection with Table 1, about the effects of including unrelated individuals, or of changing age of head of family or unit. But we have here two sets of measures of aggregate disparities, associated with the age of head of family or of unit; and since we also have measures of <u>total</u> disparity in income, among families or units grouped by size of income per family or unit (Panel A), we can compare disparity associated with the age-of-head variable with the total spread in Panel A.

It may be seen that the TDMs and the Gini coefficients for the classification by age of head are between a third and four-tenths of the total disparity, when we compare families (line 14 with line 5); and about four-tenths when we compare units (line 18 with line 10). But the meaning of such comparisons is ambiguous, in at least two major respects.

First, as already indicated, the measures of disparity or variance used here are not additive. Hence we cannot compare the TDMs or the Gini coefficients, and assume that the measure of disparity associated with the age-of-head variable reflect the differences which, if subtracted from the measures for total disparity, would leave us with residual differences reflecting properly the effects of all other variables except that of age-of-head. In fact, more elaborate calculations, still tentative, using the logs of the income magnitudes, suggest that the share of variance accounted for by income disparities by age of head is much smaller than is suggested by comparison of the TDMs or Gini coefficients.

Second, and perhaps as important, the classification of families or units by the year's income presumably fully reflects the effects of accidental elements--affecting individual households--that would be cancelled out in the totals or averages for the groups by age of head (or for any other classification on bases not correlated with the accidental elements). If we reasonably assume that the accidental component tends to average out for each group by age of head, the income disparities among such groups should be compared with total income disparities adjusted to eliminate the accidental element. This means that the TDMs and Gini coefficients in Panel A should be appreciably lower than they are now, for proper comparability with those in Panel B. In that case the disparities recorded in Panel B would loom larger relative to those in Panel A. The amount of reduction in total disparities in Panel A that would be produced by the elimination of the accidental components can only be a guess, short of a study of time series on annual income for individual families or household

units. But for the sake of illustration, and by extreme assumptions, we use in the tabulation below hypothetical values of the multiplier that would reflect the magnitudes and signs of the accidental elements in the successive income classes (the column headings correspond to those of Panel A).

	Income Classes									Total
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
1. Multiplier	6	3	2	1.5	1.25	1.0	0.8	0.66	1.00	
Illustrative Values										
2. Share in income (%)	1.2	6.0	7.8	9.0	10.0	25.3	27.1	13.6	100.0	
3. Income relative	0.34	0.73	0.79	0.83	0.89	0.97	1.18	1.86	1.00	
4. Disparity	-2.3	-2.2	-2.1	-1.8	-1.2	-0.8	4.1	6.3	20.8 (0.149)	

The range in the multiplier may seem unrealistically wide. But it should be noted that losses and absolutely low incomes make for a high ratio of the negative accidental element and of the needed multiplier, and gains and high incomes make for a ratio of the multiplier that deviates much less from 1.0. At any rate, the illustration is designed to suggest the nature of the effects that can be exercised by the accidental component in the successive income classes--even if the reduction in the TDMs and Gini coefficients to less than half of those in line 5 of Panel A may be an exaggeration.

The procedure followed in Panel C--excluding the two extreme age-of-head groups, and observing the effect on aggregate disparity by age of

head and among households by income per household--does not bear directly on the difficulties just discussed. But it reflects a view that families or units with very young or very old heads may not be fully-fledged, active, standard households--representing the early learning stage at one end and the retirement stage at the other; and also characterized by a unit size well below the average. Since their exclusion should remove much of the effect of age-of-head differentials, we recalculated by means of Panel B the TDMs for the distributions excluding the two extreme age-of-head groups. With this adjustment the TDM for families was lowered from 18.8 (see line 14, col. 7) to 9.0; and that for all units from 24.2 (see line 18, col. 7) to 10.8. With this drastic reduction in the disparities associated with the age-of-head variable, there is also a reduction in the total disparity among families or units classified by income per household. A comparison of the measures in Panel C (lines 21 and 24, col. 9) with those in Panel A (lines 5 and 10, col. 9), shows a reduction of close to a tenth for families and well over a tenth for total units. Such proportional reductions would presumably be significantly greater if Panel A represented disparities among households grouped by income adjusted to eliminate effects of accidental elements.

We shall find, in subsequent discussion, a small number of persons per household for the two extreme age-of-head groups; so that on a per person basis, the income for those two groups may not be significantly below the average. It should, therefore, be recognized that the effects of exclusion of the two extreme age-of-head groups, summarized here, apply only to distributions in which income per household rather than income per person in the household is the basic criterion for grouping of income magnitudes.

We now turn to data on income disparities by age of head or among groups classified by income per household for some other countries. These are Israel for 1968/69, limited to urban families (but comprising over 80 percent of all families)--included because of the wealth of available relevant detail; Taiwan--for 1964 and partly for 1972 (the age-of-head groupings were not available to me for 1972 for Taipei city); and the Philippines, for 1971. The sample is hardly representative, and we therefore cannot claim generality for the findings. Moreover, the underlying data, particularly for income, have not been critically examined with respect to coverage and accuracy, so that the findings are subject to further check even for the countries included. In particular, the question raised in Mr. Oshima's paper concerning the data for the Philippines for 1971, which show incomes that fall substantially short of total expenditures, for income groups up to a very high position in the income array, was not, and could not be, considered. The summary that follows is, consequently, of findings that may be of interest, but cannot be said to be either representative or firm. To economize space, we discuss the findings for the three countries together.

(a) In Israel, in 1968/69, as in the United States in 1972, the combined proportions of the young and old age-of-head groups (below 25 and 65 & over) are at least a fifth of all households (see line 2 of Table 3, and lines 12 and 16 of Table 2). The only difference is that the share of the young group is distinctly lower in Israel than in the United States, while that of the older group is somewhat higher. By contrast, the combined proportions of the two extreme age-of-head groups are quite low

in Taiwan--below 10 percent in 1964 and probably about the same in 1972 (see line 2 of Table 4 , as well as the partial coverage for 1972 in lines 14 and 18); and are below 13 percent for the Philippines (see line 2 of Table 5). These differences suggest that the age-of-head pattern in the economically less developed countries, with their different population growth rates and age structure, is likely to differ from that in the economically developed countries.

(b) The pattern of relative incomes of the different age-of-head groups, with the lows in the group with head under 25 or 65 and over, is the same in Israel as in the United States (compare line 3, Table 3, with lines 13 and 17 of Table 2). But in Taiwan in 1964 and, at least for farm households in 1972, while the income relative for the younger age group is low, that for the group with the head 65 & over is well above 1.0 (see line 3 of Table 4); and for 1972 the income relative for the oldest age group is only 10 percent below the average for nonfarm households, excluding Taipei City (line 15 of Table 4) and appreciably above the average for farm households (line 19 of Table 4). In the Philippines also, while the income relative for the households in the youngest group is low, that for the oldest group is close to the average (line 3 of Table 5).

(c) With the proportions of households within the very young and and the very old age-of-head groups low in both Taiwan and the Philippines, and the income relatives markedly low only for the youngest age group, these two extreme classes contribute little to the disparity associated with the age-of-head variable. Thus, while for the United States families

Table 3 Income Disparities, Households Classified by Age of Head and by Net Total Income, Urban Families, Israel, 1968/69

A.	Age Classes						Total
	18-24 (1)	25-34 (2)	35-44 (3)	45-54 (4)	55-64 (5)	65 and over (6)	(7)
1. Share in total gross income (%)	2.1	17.5	26.1	25.3	19.8	9.2	100.0
2. Share in number of households (%)	3.0	16.4	22.8	21.1	19.4	17.3	100.0 (614)
3. Income relative per household (%)	0.70	1.07	1.15-	1.20	1.02	0.59	1.00
4. Disparity in shares	-0.9	1.1	3.3	4.2	0.4	-8.1	18.0 (0.115)

B.	Net Total Income Classes (IL. per month)							Total
	Below 300	300-599	600-799	800-999	1,000-1,199	1,200-1,499	1,500 +	
All Urban Households								
5. Share in total gross income (%)	2.7	9.6	14.1	15.8	13.7	17.1	27.0	100.0
6. Share in number of households (%)	12.6	22.2	17.9	15.3	10.7	10.5	10.8	100.0 (613)
7. Income relative per household	0.21	0.43	0.79	1.03	1.28	1.63	2.51	1.00 (986)
8. Disparity in shares	-9.9	-12.6	-3.8	0.5	3.0	6.6	16.2	52.6 (0.363)
Excluding Households with Heads Aged Below 25 and 65 and over								
9. Share in total gross income (%)	1.3	7.8	14.3	16.3	14.1	18.1	28.1	100.0
10. Share in number of households (%)	6.6	19.8	19.8	17.3	12.1	12.1	12.3	100.0 (489)
11. Income relative per household	0.19	0.39	0.72	0.94	1.17	1.48	2.28	100.0 (1,080)
12. Disparity in shares	-5.3	-12.0	-5.5	-1.0	2.0	6.0	15.8	47.6 (0.329)

Table 3--continued

Notes: The data are taken, or calculated, from Israel Central Bureau of Statistics, Family Expenditure Survey 1968/69, Part IV, Family Income, Special Series no. 388, Jerusalem 1972. The classes by age of head are from Table 13, p. 16, and are given for groups classified by monthly total net income (i.e. total, excluding direct taxes); but the income amounts are given for total gross income. The data by income size classes were, accordingly, taken from Table 5, p. 8, which similarly shows distribution by total net income of total gross income.

The urban population of Israel accounts for "82 percent of all the families in the country" (p. XI). The investigation unit or household is defined as "a family of consumers," i.e., a group of persons living in the same dwelling most of the week and partaking of at least one common meal a day together. "In the majority of cases, this unit is identical with the family in the accepted sense of the word, but there are also exceptional cases" (e.g., sub-tenant living and sharing meals with the family, or a group of students living together and sharing meals) (p. XI).

Total income includes all money income, excluding non-recurrent receipts (e.g., inheritance or severance pay), plus receipts in kind and imputed income on private dwellings and vehicles (p. XXII). Total net income is obtained by deducting direct taxes from total or total gross income.

Table 4 Income Disparities, Households Classified by Age of Head and by Family Income, Taiwan 1964, and Nonfarmer and Farmer Families, 1972 (excluding Taipei City)

	A. Age Classes, 1964									Total
	Below 25 (1)	25-30 (2)	30-35 (3)	35-40 (4)	40-45 (5)	45-50 (6)	50-55 (7)	55-60 (8)	60 & over (9)	(10)
1. Share in income (%)	2.0	8.6	14.3	16.3	16.8	15.8	12.2	7.5	6.5	100.0 (64,356)
2. Share in number of households (%)	2.8	9.3	15.9	16.9	17.2	14.6	10.9	6.4	6.0	100.0 (2,152)
3. Income relative per household	0.71	0.92	0.90	0.96	0.98	1.08	1.12	1.17	1.08	1.00 (29.9)
4. Disparity in shares	-0.8	-0.7	-1.6	-0.6	-0.4	1.2	1.3	1.1	0.5	8.2 (0.052)

	B. Income Classes (000s of NT$), 1964								Total
	Below 12 (1)	12-18 (2)	18-24 (3)	24-30 (4)	30-38 (5)	38-50 (6)	50-70 (7)	70 & over (8)	(9)
All Households									
5. Share in income (%)	2.9	8.8	14.3	15.6	15.6	14.6	13.3	14.9	100.0 (64,356)
6. Share in number of households (%)	9.6	17.5	20.4	17.4	13.8	10.1	6.8	4.4	100.0 (2,152)
7. Income relative per household	0.30	0.50	0.70	0.90	1.12	1.45	1.96	3.33	1.00 (29.9)
8. Disparity in shares	-6.7	-8.7	-6.1	-1.8	1.8	4.5	6.5	10.5	46.6 (0.323)

Table 4--continued:

B.	Income Classes (000s of NT$), 1964								Total
	Below 12 (1)	12-18 (2)	18-24 (3)	24-30 (4)	39-38 (5)	38-50 (6)	50-70 (7)	70 & over (8)	(9)
Households Excluding Those with Heads Aged Below 25 or 60 & Over									
9. Share in income (%)	2.6	8.8	14.4	15.8	16.3	14.7	13.0	14.4	100.0 (58,901)
10. Share in number of households (%)	8.5	17.5	20.6	17.8	14.5	10.2	6.7	4.2	100.0 (1,961)
11. Income relative per household	0.31	0.50	0.70	0.89	1.12	1.44	1.94	3.43	1.00 (30.0)
12. Disparity in shares	-5.9	-8.7	-6.2	-2.0	1.8	4.5	6.3	10.2	45.6 (0.317)

C.	Age Classes, 1972									Total
	Below 25 (1)	25-30 (2)	30-35 (3)	35-40 (4)	40-45 (5)	45-50 (6)	50-55 (7)	55-60 (8)	60 & over (9)	(10)
Nonfarmer Households (excluding Taipei City)										
13. Share in income (%)	2.8	7.2	13.5	16.2	20.0	18.6	11.5	6.0	4.2	100.0 (99,316)
14. Share in number of households (%)	3.2	7.9	14.7	16.2	20.2	17.1	10.4	5.7	4.6	100.0 (1,655)
15. Income relative per household	0.86	0.91	9.92	1.00	0.99	1.09	1.11	1.06	0.90	1.00 (60.0)
16. Disparity in shares	-0.4	0.7	-1.2	0	-0.2	1.5	1.1	0.3	-0.4	5.8 (0.042)
Farmer Households										
17. Share in income (%)	1.9	3.9	8.0	14.1	17.5	15.9	15.1	11.3	12.3	100.0 (35,086)
18. Share in number of households (%)	2.3	5.1	9.4	16.5	17.7	14.9	13.6	9.9	10.7	100.0 (716)
19. Income relative per household	0.82	0.76	0.85	0.85	0.99	1.07	1.11	1.16	1.15	1.00 (49.0)
20. Disparity in shares	-0.4	-1.2	-1.4	-2.4	-0.2	1.0	1.5	1.5	1.6	11.2 (0.071)

Table 4--continued:

Notes: The entries in parentheses in the last column of lines 1, 5, 9, 13 and 17 are the totals of all income (in millions of NT dollars); of lines 2, 6, 10, 14, and 18--totals of households (in thousands); of lines 3, 7, 11, 15 and 19--income per household (in thousands of NT dollars); of lines 4, 8, 12, 16, and 20--Gini coefficients, corresponding to the TDMs shown.

Panels A and B, lines 1-12

Data taken or calculated from Directorate General of Budgets Accounts and Statistics, Report on the Survey of Family Income and Expenditure and Study of Personal Income Distribution in Taiwan, 1964 December 1966, Taipei (in English), Table 18, pp. 278-281.

"The sample was drawn from the universe of registered ordinary households" (p. 121) thus excluding military and institutional population, combined households (such as factory dormitories), registered household members living away from home, and servants or employees registered as part of another family household (the latter uncommon).

"Personal family income ...includes actual and imputed income received by household from all sources, whether in cash or kind.." (p. 122), whether earned, received from property, or a transfer payment. The only exclusion noted is undistributed profits in the case of "enterprises with five or more employees operated at a separate site from the family dwelling" (p. 122).

Panels C, lines 13-20

Taken or calculated from Department of Budget, Accounting and Statistic, Taiwan Provincial Government, Report on the Survey of Family Income & Expenditure, Taiwan Province, Republic of China, 1972 (Taipei, 1973), Table 23, pp. 404-411 (in Chinese, but with English titles in tables).

Family income or total current receipts comprise wages and salaries, total property income (interest, actual and imputed rent, and investment income), mixed incomes (net agricultural income, including that from forestry and fishing; net operation surplus--presumably from non-agricultural individual firms; and net professional income), gifts and other transfer receipts, and miscellaneous receipts.

Table 5 Income Disparities, Households Classified by Age of Head and by Family Income, The Philippines, 1971

A.	Age Classes						Total
	Below 25 (1)	25-34 (2)	35-44 (3)	45-54 (4)	55-64 (5)	65 & over (6)	(7)
1. Share in income (%)	2.9	19.9	25.8	25.6	18.4	7.4	100.0 (24.57)
2. Share in number of households (%)	5.0	24.8	26.9	21.0	14.5	7.8	100.0 (6,347)
3. Income relative per household	0.57	0.80	0.96	1.22	1.27	0.95	1.00 (3,871)
4. Disparity in shares	-2.1	-4.9	-1.1	4.6	3.9	-0.4	17.0 (0.110)

B.	Income Classes (000s of pesos)							Total
	Below 1.0 (1)	1.0-2.0 (2)	2.0-3.0 (3)	3.0-5.0 (4)	5.0-8.0 (5)	8.0-15.0 (6)	15 & over (7)	(8)
All Households								
5. Share in income (%)	2.9	9.6	11.8	20.4	19.1	20.3	15.9	100.0 (23.71)
6. Share in number of households (%)	17.3	23.9	17.7	20.0	11.4	7.3	2.4	100.0 (6.347)
7. Income relative per household	0.17	0.40	0.66	1.02	1.68	2.78	6.62	1.00 (3,736)
8. Disparity in shares	-14.4	-14.3	-5.9	0.4	7.7	13.0	13.5	69.2 (0.477)
Excluding Households with Heads Aged below 25 and 65 and Over								
9. Share in income (%)	2.6	9.4	11.6	20.4	19.5	21.0	15.5	100.0 (2,118)
10. Share in number of households (%)	15.6	23.9	18.1	20.5	11.9	7.6	2.4	100.0 (5.531)
11. Income Relative per household	0.17	0.39	0.64	1.00	1.64	2.76	6.46	1.00 (3,829)
12. Disparity in shares	-13.0	-14.5	-6.5	-0.1	7.6	13.4	13.1	68.2 (0.474)

Table 5--continued:

C. Shares in Number and Income Relative (Based on Medians), Households by Age of Head, Philippines, Manila and Suburbs, Other Urban, and Rural

	Age Classes						Total
	Below 25 (1)	25-34 (2)	35-44 (3)	45-54 (4)	55-64 (5)	65 & over (6)	(7)
Share in Total Number of Households (%)							
13. Philippines	5.0	24.8	26.9	21.0	14.5	7.8	100.0 (6,347)
14. Manila & suburbs	5.6	27.0	26.5-	19.2	15.0	6.7	100.0 (525)
15. Other urban	3.3	24.5-	26.4	22.5+	15.1	8.2	100.0 (1,388)
16. Rural	5.5	24.6	27.1	20.8	14.2	7.8	100.0 (4,434)
Income Relative (Based on Median Income)							
17. Philippines	0.68	0.88	1.07	1.19	1.11	0.82	1.00 (2,454)
18. Manila & suburbs	0.65+	0.82	0.87	1.23	1.59	1.42	1.00 (5,202)
19. Other urban	0.75-	0.87	1.01	1.18	1.22	0.92	1.00 (3.650)
20. Rural	0.70	0.90	1.09	1.23	1.05+	0.82	1.00 (1,954)

Notes: The underlying data are from the Bureau of Census and Statistics, Family Income and Expenditures, 1971, Series no. 34 of the BCS Survey of Households (Manila, 1974), Table 47, pp. 128-29.

For Panel A, the means for the classes grouped by age of head had to be calculated from Table 47, p. 128, assigning to each of the 14 size-of-income classes the class mean taken from the distribution for the Philippines in Table 2, p. 1. The over-all result was a slightly higher income total (by somewhat less than 4 percent) and hence a slightly higher income per family.

Family income covers all money and income in kind, including gifts, transfers, and inheritance if received within the last 12 months (see source, p. xi).

Table 5--continued:

Urban areas were defined largely by density of population, presence of minimum number of business establishments, market place, etc.--a definition which, using the Census data for 1970, would show 32 percent of total population in urban and 68 percent in rural areas. Rural families are substantially more numerous than farm families (see notes to Table 17 below).

The entries in parentheses in the last column of lines 1, 5, and 9 are the totals of all family income (in billions of pesos); in lines 2,6,10, and 13-16 the number of households (in thousands); in lines 3,7, and 11, arithmetic mean income per household (in pesos); in lines 17-20--median income per household (in pesos); in lines 4,8, and 12--the Gini coefficients, corresponding to the TDMs.

these two classes contribute 7.7 points out of a total disparity of 18.8 (line 14, Table 2), for the United States total units 12.2 points to a total of 24.2 (line 18, Table 2), and for Israel 9.0 points to a total of 18.0 (line 4, Table 3), the contribution in Taiwan was only 1.3 points out of a total of 8.2 (or an algebraic net of only 0.3 points, line 4, Table 4) and in the Philippines only 2.5 points out of a total of 17.0 line 4, Table 5).

(d) Two consequences follow. The first is that the magnitude of total disparities associated with the age-of-head variable is well below 10 points in Taiwan; while in the Philippines the much greater TDM is due largely to the rather marked TDM for the Manila and suburbs subgroup, a puzzling finding. Disregarding for the moment the odd aspects of some of the evidence for the Philippines, it would seem that at least the two less developed countries here show a narrower disparity associated with the age-of-head variable than the two more developed countries (United States and Israel).

(e) The second consequence of the low proportions of the two extreme age-of-head classes, and the moderate deviations of their income means from the average, is the negligible effect of their exclusion on the

total disparity in the distributions of households by income per household, both in Taiwan and in the Philippines. Whereas in the United States such exclusion lowered the TDMs and the Gini coefficients in the total distribution by income per household by about a tenth, and that in Israel had about the same proportional effect (see lines 8 and 12, col. 7 of Table 3), the result for Taiwan in 1964 was a very slight change in the TDM and no change in the Gini coefficient (lines 8 and 12, column 9, Table 4) and the same was true of the Philippines (lines 8 and 12, col. 8, Table 5). Thus, the inequality in the size-distribution for households averaged the same whether or not the two extreme age-of-head groups were included. If a wider and more representative sample of developed and less developed countries should confirm this finding, one could argue that the age-of-head factor contributes greater variance to the total distribution of households by income per household in the developed than in the less developed countries.

(f) The data for Taiwan for 1972, in Panel C of Table 4, and for the Philippines for 1971, in Panel C of Table 5, are of some interest in that they distinguish nonfarm households (excluding Taipei City) from farm in the former, and urban from rural households (the former subdivided between Manila and other urban) in the latter. The findings for Taiwan conform to expectations in indicating a distinctly higher proportion of families with older heads among the farm than among the non-farm households (and as Table 13 below shows the average farm household is distinctly larger than the average nonfarm household). They also reveal a pattern of income relatives by age-of-head classes which, with its rise to relatively high

levels in the advanced ages, is similar to what we find in the two less developed countries so far and could, perhaps, be associated with the family formation characteristics of the countryside in LDCs. But for the Philippines the findings are puzzling in that the distribution by age of head for Manila and suburbs and that for the rural areas do not differ (although rural is presumably dominated by farm families); and it is in Manila that the income relative rises markedly to the advanced age-of-head classes. An explanation of this finding would require more intensive analysis of the demographic and family structure in the Philippines than is feasible here.

4. Association Between Age of Head and Size of Household

The life cycle of a household, dated by the age of its head, is also one of early rise in the number of persons included, as children are born and added to the family, and of much later decline, as children mature and leave the family fold. Before shifting our discussion to the size of household or family as another component in the size-distribution of income among households, we explore the association between age of head and household size; and observe the effect of conversion to a per person basis on the income differentials among households by age of head.

The data on families in Panel A of Table 6 are taken from the 1970 Census of Population, in which the definition of the family (and unrelated individuals) is the same as in the annual sample study of family incomes which we have used for Table 1 and other tables in this paper. The Census data show that the average size of the family rises from somewhat less than 3 persons in the group with heads aged below 25 to a peak of about 4.7 persons in the group with heads aged 35 to 44, and then declines to 2.4 persons in the oldest age-of-head group, 65 and over (line 3). With unrelated individuals included (taken from the sample study for March 1970), the averages for the same age groups are about 2.3 persons, over 4.3 persons, and less than 1.8 persons respectively (line 15).

The Census also gives much detail on the age composition of members of families (which can be supplemented by the age data for unrelated individuals) cross-classified with age of head (lines 4-9 and 16-17). Among the families (and hence also among all units) the rise in average size from the youngest age-of-head group to the peak, i.e., from 2.3 to 4.67, or 1.84, is largely due to the rise in the number of persons under 18 (presumably children of the

Table 6 Association Between Age of Head and Size of Family or Unit, United States, 1970

A. Distribution of Families or Total Units, and of Population, by Age of Head

	Age Classes						Total
	Below 25	25-34	35-44	45-54	55-64	65 & Over	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Families							
1. Share in number of families (%)	7.0	20.4	21.3	21.2	16.3	13.8	100.0 (51.14)
2. Share in total population in families (%)	5.6	22.7	27.8	22.0	12.7	9.2	100.0 (182.8)
3. Persons per family	2.83	3.96	4.67	3.71	2.79	2.38	3.57
Shares within total numbers of various age groups (%)							
4. Below 6	27.6	26.1	9.9	3.7	2.1	1.2	11.4
5. 6-13	3.4	22.7	30.5+	15.6	5.8	2.7	18.2
6. 14-17	3.1	1.7	13.5+	14.5-	6.7	2.1	8.6
7. 18-44	64.6	48.5+	43.6	21.3	15.7	9.7	34.4
8. 45-64	1.0	0.7	1.6	42.9	65.7	18.1	20.1
9. 65 & over	0.3	0.3	0.9	2.0	4.0	66.2	7.3
10. Working age persons per family (lines 7-8)	1.86	1.95	2.11	2.38	2.27	0.66	1.95
11. Dependent age persons per family (lines 4-6 and 9)	0.97	2.01	2.56	1.33	0.52	1.72	1.62
12. Dependence ratio (line 11/line 10)	0.52	1.03	1.21	0.56	0.24	2.61	0.83

Table 6 continued:

	Classes by Age of Head						Total
	Below 25	25-34	35-44	45-54	55-64	65 & Over	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Total Units (Families and Unrelated Individuals)							
13. Share in number of units (%)	8.1	18.3	18.2	19.2	16.9	19.3	100.0 (65.59)
14. Share in total persons (%)	6.1	21.8	26.3	21.3	13.2	11.3	100.0 (197.3)
15. Persons per unit	2.26	3.58	4.34	3.34	2.35	1.77	3.01
Shares within total numbers of age groups (%)							
16. 18-64	70.6	51.0	46.3	65.7	87.1	41.5-	57.8
17. Others	29.4	49.0	53.7	34.3	12.9	58.5	42.2
18. Working age persons per unit	1.59	1.83	2.01	2.19	2.05	0.73	1.74
19. Dependent age persons per unit	0.67	1.75	2.33	1.15	0.30	1.04	1.27
20. Dependence ratio (line 19/line 18)	0.42	0.94	1.16	0.52	0.15	1.43	0.73

B. Money Income per Family or Total Unit, and per Person, Families and Total Units by Age of Head (Money Income for 1969)

Families							
21. Income relative, per family	0.65-	0.94	1.13	1.22	1.07	0.64	1.00 (10.58)
22. Income relative, per person	0.80	0.85-	0.87	1.18	1.37	0.81	1.00 (2.96)
Total Units							
23. Income relative, per unit	0.61	1.04	1.25	1.30	1.05+	0.55-	1.00 (9.18)
24. Income relative, per person	0.81	0.87	0.87	1.17	1.35	0.93	(3.05)

Table 6--continued

Notes: The data in lines 1-12 and 21-22, for April 1, 1970, are taken or calculated from Bureau of the Census, 1970 Census of Population, Subject Reports, Family Composition, PC(2) 4A (Washington, May 1973), Table 7, p. 55.

The definition of the family is similar to that used in the source for Table 1.

The data on number of unrelated individuals, needed to shift from totals for families to those for all units (in lines 13-20 and 23-24) are from the Bureau of the Census, Income in 1969 of Families and Persons in the United States, Series P-60, no. 75 (Washington, December 1970), Table 17, pp. 35 ff. Population there is given for March 1970 and the totals are closely similar to the Census totals.

Entries in parentheses in column 7, lines 1 and 13, refer to number of families or units (in millions); in lines 2 and 14, to number of persons (in millions); in lines 21-24 to average income per family, per unit, or per person (in thousands of dollars).

family) from 0.97 to 2.52, 1.55, or over eight-tenths of the total addition. The decline from the peak to the low in the oldest age-of-head group, of 2.29 per family, is more than accounted for by the drop in persons under 18 per family from 2.52 to 0.13--there being a compensatory increase in older persons per family. And these patterns of change not only in size but also in age composition of the family or unit, with advancing age of head, are important in interpreting the positive correlation between income per household and size of family. Clearly, both the income relatives and the size of family for groups by age of head display roughly similar inverted U patterns, rising from the low to the middle age brackets and then declining to the advanced age-of-head classes. There is also a positive association with the number of persons of working age per household (lines 10 and 18)--which partly explains the movements of the income relative per household--with the number of persons, representing consumers and users of income with reference to whom the income magnitudes are to be interpreted. Disregarding the complexities involved in shifting from the persons of working age to actual earners, and from the number of persons to comparable consumer units, we can state that the movement of income per household by age of head is closely correlated with the size of household, whether in terms of persons of working age or of all persons representing consumers.

The relation of income to consuming units is particularly important; and while persons of different ages may represent different fractions of a standard consumer unit and substantial economies of scale may be associated with size of the household, we limit our treatment here to dividing household income by total number of persons (except for a brief Appendix). Two general comments should be made in this connection, particularly since we follow this practice also in the next section, which deals with the size of household component.

The first is the obvious suggestion that by ignoring the lesser weight of younger children as consumers, and possible economies of scale, we overestimate the number of consumer units involved; and also the effects of reduction when we shift from total income per household to income per person. But except for a simple alternative, summarized in the Appendix, it is impossible here to attempt a more elaborate conversion, and resolve the difficulties of weighting the different consumer unit needs for different categories of goods. Our estimates here, in fact, provide a kind of outside limit to the effect on total income produced by relating it to the number of consumers in the household. In the case of earners, we do have some direct data on their number by groups distinguished by age of head; but these, too, are unadjusted for the productive weight of such earners that might be suggested at least by their age and sex.

Second, the reluctance expressed in some of the papers in this conference to adjust for the size of family or household was sometimes justified by an indication that the analyst was not interested in welfare, and therefore presumably did not need to worry about the consumption units to which total family or household was to be related. But, surely, whatever the analyst's interest in the size-distribution of income, it is <u>not</u> in mechanical measures of income inequality among recipient units, some of which may include as many as twenty persons--whether producers or consumers--and others may include only one or two persons. The relevance of income shares is to the productivity, or consumption needs, or economic power, of units that, as producers or consumers, or users of income for other purposes, are not so different in size that an income excess is converted into an income deficiency when we shift from total income to income per producer or consumer.

In Panel B the income relative for income per family or per unit is com-

pared with the income relative per person, at successive ages of the head (lines 21-24). While income per household first rises and then declines, income per person is roughly the same in three youngest age-of-head classes, i.e., when the movement from small size to peak size takes place; rises only for families or units in the groups with heads aged 45-54 and 55-64; and the declines to about the levels for the youngest age group. The Census data for 1960 show the same movement of per person income (see Paul C. Glick and Robert Parke Jr., "New Approaches in Studying the Life Cycle of the Family," Demography, 1965, vol. 2, pp. 187-202, particularly Figure 6, p. 199, and dis-dussion on pp. 198 and 200). The specific pattern may not be constant from year to year, but two aspects of the findings indicated in Panel B are likely to be found more generally. First, the amplitude of the movement of per person income for households, with changes in age of head, is probably narrower than in the inverted U shape pattern displayed by income per household. Second, per person income is not likely to rise appreciably over the span of age of heads of households when the size of household increases (i.e., for developed countries from the youngest age-of-head group to that with heads aged 35-44), and, indeed, may decline in some of the shorter age-of-head ranges within that longer span. The significant rise in income per person income would then be shown within the limited range between the peaking of the size of the household and entry into retirement--in developed countries between ages of head in the mid-40s to the mid-60s.

The effects of the shift in the movements of income relatives, with changing age of head, from a per household to a per person basis, in the United States family and unit incomes in 1972 and in Israel urban household incomes in 1968/69 are quite similar to those observed in Table 6 for United States incomes in 1969 (Table 7). For the United States, both families and total units, the income

relatives on a per person basis in 1972 again show no rise over the first three age-of-head classes, the first significant rise being from the 35-44 to the 45-54 age-of-head class and the highest per person income being in the 55-64 age-of-head class (lines 5 and 10). The movements of the income relative per person for Israeli urban households in 1968/69 is closely similar to that for the United States in 1972, but of somewhat narrower amplitude (line 16).

One finding suggested by Table 7, and not observed in Panel B of Table 6, is the low average income per person in households with heads aged 35-44--precisely the age-of-head class in which the average number of persons per family or household is at its peak, in both countries (and quite possibly in most developed countries). In the United States, the per person income relative for the 35-44 age-of-head class is distinctly below that for the 25-34 age class, and about the same as that for the youngest age-of-head class. In Israel, there is a sharp decline in the per person income relative from the 25-34 to the 35-44 head-of-age class, and that for the latter, at 0.82, is by far the lowest in the whole life-cycle pattern in line 16. This suggests that even in the developed countries there may be a substantial period in the lifetime cycle where the size of family increases more rapidly than total household income, with whatever strains and possible modifications in consumption and income disposition patterns follow.

Three questions are suggested by the findings in Tables 6 and 7. (a) Are age of head and size of family (or of household) two distinct variables, or are they so closely associated that taking account of one exhausts the contribution of the other? (b) What does the pattern of changing income per person, with changing age of head, suggest with respect to possible successive periods of ease and strain in the life cycle of families--in the developed countries?

Table 7 Income Relatives Per Household and Per Person, Classified by Age of Head, United States, 1972 and Israel, 1968/69

	Age Classes						Total
	Below 25	25–34	35–44	45–54	55–64	65 & over	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
United States (Money Income), 1972							
Families							
1. Number of families (mill.)	4.19	11.94	10.73	11.26	8.66	7.59	54.37
2. Persons per family	2.69	3.56	4.84	4.07	2.30	2.26	3.47
3. Number of Persons (mill.)	11.37	42.51	51.93	45.83	20.32	17.15	189.01
4. Income relative per family	0.62	0.92	1.14	1.24	1.01	9.66	1.00 (12.63)
5. Income relative per person	0.80	0.90	0.82	1.06	1.66	1.02	1.00 (3.64)
Units (families and unrelated individuals)							
6. Numbers of units (mill.)	6.69	14.19	12.05	13.05	11.43	13.77	71.18
7. Persons per unit	2.06	3.15	4.42	3.65	2.02	1.70	2.89
8. Number of persons (mill.)	13.77	44.76	53.25	47.62	23.09	23.33	205.82
9. Income relative per family	0.59	1.02	1.27	1.33	1.08	0.57	1.00 (10.86)
10. Income relative per person	0.83	0.94	0.83	1.05	1.53	0.96	100 (3.76)
Israel, Urban Households, 1968/69							
11. Number of households (000s)	18	101	140	129	119	106	613
12. Persons per household	2.7	3.8	4.8	4.3	2.8	2.2	3.7

Table 7--continued

	Age Classes						Total
	Below 25	25-34	35-44	45-54	55-64	65 & over	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
13. Number of persons (000s)	49	384	672	555	333	233	2,226
14. Earners per household	1.3	1.3	1.4	1.5	1.4	0.6	1.13
15. Income relative per household	0.70	1.07	1.15-	1.20	1.02	0.59	1.00 (1,009)
16. Income relative per person	0.95+	1.03	0.82	1.02	1.33	0.98	1.00 (273)

Notes:

Lines 1-10 are based on data in the source used for Table 1 above, and in Tables 6 and 8. For Table 8 below the 25-34 and 35-44 age-of-head classes are combined; and so are the 45-54 and 55-64 age-of-head classes. We estimated, for families (for unrelated individuals the sourceprovides the detailed data) the per family average of persons from the ratios of per family persons within the more detailed classes in Table 6. The per family income was given for detailed age classes in the source (see Table 2 above).

For lines 11-16 the underlying data are from the source cited for Table 3 above, Tables 13 and 16, pp. 16-19. It should be noted that the income averages refer to gross income per household or per person.

Entries in parentheses in column 7, lines 4 and 9 are the absolute averages of money income per family or per unit (in thousands of dollars) and in line 15 per household income (in IL pounds); similar entries in column 7, lines 5, 10, and 16, are the average income amounts per person.

(c) What implications does the pattern mentioned under (b) contain for the less developed countries? None of these questions can be answered adequately by the evidence summarized in Table 8, not only because it relates to a single country and year but also because the wide age-of-head classes conceal crucial subperiods within the family life cycle. But with the evidence in the table we can attempt to formulate realistic, if necessarily tentative, answers.

(a) While revealing the significant association between age of head and size of household, Table 8 indicates that each variable exercises an effect on household income (or at least is associated with differences in the latter) independent of the other. Thus, line 13 shows that for three-person families (the number of such families in the spring of 1973 was over 11.5 million, see line 3 col. 5), per family money income in 1972 ranged from an average of $7.7 thousand in the group with heads younger than 25 to a peak of $15.3 thousand in the 45-64 age class, and then declined to $11.6 thousand in the 65 and over age-of- head class. Likewise, within the 45-64 age-of-head class, which comprised almost 20 million families, and 24.5 million units (col. 3, lines 7 and 8), there was a wide distribution of families and units by size, and the average money income per family in 1972 ranged from $12.5 thousand for families of 2 persons each to an average of almost $17 thousand for families of 6 persons and over. Although this direct evidence relates to a single country and year, more general information would indicate that, in addition to the significant association between age of head and size of family, we would find significant independent variance for each variable. After all, increasing experience, knowledge, and widening of established markets would affect the income of the main earner, regardless of the size of the family; and similarly more advanced age would affect productivity. Likewise, the addition of earners, or of consuming units, would have an effect regardless of the age of head.

Table 8 Money Income Disparities, Age of Head and Number of Persons per Family or per Unit Cross-Classified, United States, 1972

	Age Classes (Family Head or Individual)				
	Below 25 (1)	24-44 (2)	45-64 (3)	65 & over (4)	Total (5)
Numbers of Units by Size of Unit (million)					
1. 1 person	2.50	3.57	4.56	6.18	16.81
2. 2 persons	2.01	3.58	8.22	6.11	19.92
3. 3 persons	1.47	4.50	4.65	0.95	11.57
4. 4 persons	(0.71)	6.42	3.38	(0.53)	11.04
5. 5 persons	(0)	4.26	1.85	(0)	6.11
6. 6 persons & over	(0)	3.91	1.82	(0)	5.73
7. Families (lines 2-6)	4.19	22.67	19.92	7.59	54.37
8. Units	6.69	26.24	24.48	13.77	71.18
9. Persons per family	2.69	4.17	3.30	2.26	3.47
10. Persons per unit	2.06	3.74	2.87	1.70	2.89
Money Income Per Family or Per Unit ($,000s)					
11. 1 person	4.00	8.02	5.82	3.44	5.14
12. 2 persons	8.15	12.78	12.55	7.54	10.58
13. 3 persons	7.68	11.92	15.32	11.65-	12.72
14. 4 persons	(7.61)	13.26	17.62	(12.91)	14.38
15. 5 persons	-	13.97	16.80	-	14.64
16. 6 & over	-	12.80	16.91	-	14.12
17. Families	7.89	12.97	14.85	8.36	12.63
18. Units	6.44	12.28	13.17	6.15	10.86
Number of Persons by Size of Unit (million)					
19. 1 person	2.50	3.57	4.56	6.18	16.81
20. 2 persons	4.02	7.16	16.44	12.22	39.84

Table 8--continued

	Age of Head Classes				Total
	Below 25 (1)	24-44 (2)	45-64 (3)	65 & over (4)	(5)
21. 3 persons	4.41	13.50	13.95	2.85	34.71
22. 4 persons	(2.84)	25.68	13.52	(2.12)	44.16
23. 5 persons	(0)	21.30	9.25	(0)	30.55
24. 6 & over	(0)	26.98	12.56	(0)	39.54
25. Families	11.27	94.62	65.72	17.19	188.80
26. Units	13.77	98.19	70.28	23.37	205.61
Money Income Per Person ($000s)					
27. 1 person	4.00	8.02	5.82	3.44	5.14
28. 2 persons	4.08	6.39	6.28	3.73	5.29
29. 3 persons	2.56	3.97	5.11	3.88	4.24
30. 4 persons	1.90	3.32	4.41	3.23	3.60
31. 5 persons	-	2.79	3.36	-	2.93
32. 6 & over	-	1.86	2.45	-	2.04
33. Families	2.93	3.11	4.50	3.70	3.64
34. Units	3.13	3.28	4.58	3.62	3.76

Notes:

The data are taken, or calculated, from the source cited for Table 1 above, largely Table 22, pp. 65-66, but also Table 19 (pp. 53ff) and Table 20, p. 58.

For the age classes below 25, and 65 and over, the top size group shown was 4 persons and over, and we assumed that the average number of persons per family in those groups was 4.0; and used it in calculating the entries for number and per unit and per person income. Because of the slight implicit error, the corresponding entries (lines 4, 14, and 22, columns 1 and 4) were set in parentheses.

For the 25-44 and 45-64 age classes, the number of persons in the top size group (6 persons and over) was calculated from the totals of families and persons given in the source in Table 20, p. 58. The average for the top group worked out to 6.9 persons per family.

Forestalling some of the discussion in the next section on per person income for households or families of different size, one should note in lines 27-34 of Table 8, the negative association between size of household and income per person within the age-of-head classes. Within each age-of-head class, with the interesting exception of the oldest group (65 and over) which has the most diverse internal distribution of income, per person income declines markedly as we move from the single-person units to the families of increasing size.

(b) Although the age-of-head classes in columns 2 and 3 are too wide, the detail in Table 8 indicates that even if the per person averages for age-of-head classes show stability (or a slight rise) up to the 45-54 class, large groups of families within a cohort may still suffer a substantial reduction in per person income as the size of family increases for certain ages of head. Consider as an illustration the group of two-person families in the under 25 age-of-head class, 2 million in number in the spring of 1973, and with an average 1972 money income per person of about $4 thousand (column 1, lines 2 and 28). Assume that as they move into the 25-44 age-of-head class, the family average grows to four persons; and also that it will receive the average income for that cell (i.e., the four-person family group within the 25-44 age-of-head class). In that case, income per person would drop to $3.3 thousand (col. 2, line 30). And, if further along in time, the average family grows to the six and over size, and moves into the 45-64 age-of-head class, the income per person will drop further, on the same assumptions, to $2.45 thousand (col. 3, line 32). Thus, for this group, and on the assumptions just made, income per person would drop by some 40 percent in the movement from the under 25 class to the 45-64 age-of-head class, while in the cross-section in Table 9, there is a rise in average income per person as we move from the youngest to the 45-64 age class. By contrast, a different assumed path of movement for the same group of two

person families, to three-person size in the 25-44 age-of-head class, and to a four-person size in the 45-64 age class, would mean only a slight reduction in per person income in the first of these two age classes (from $4.08 to $3.97 thousand) and a substantial rise to the 45-64 age class (from $3.97 to $4.41 thousand, see line 28, col. 1, line 29, col. 2, and line 30, col. 3).

Of course, such paths of movement of a cohort through its life cycle, derived from averages in a cross-section, are a gross over-simplification, because they tell us nothing about the position of that cohort within the distribution, i.e. within the cells, for which we have only averages. And we repeat that the cross-sections in our tables do not allow for the secular rise in per capita income--so that the differences in the average per person income shown between, say, the 25-44 and under 25 age-of-head classes are, particularly for developed countries with their steadily and markedly rising per capita incomes, much smaller than they would be for an identical cohort moving through time, from the younger to the older age-of-head classes. Yet the example does demonstrate that even if average per person income in the successive age-of-head classes is stable, even if these averages show no breaks, the life cycle experience of substantial groups of families may still contain periods of possible pressures of increasing numbers on household income, as the family grows. Such a possibility would be absent, or relevance of it low, only if the association between income per person and the size of the family or household were not negative and marked, as clearly seen in lines 27-32 of Table 8, and to be found repeatedly in the illustrative tables in the next section.

(c) No data on the association between age of head and size of household are at hand for the less developed countries; nor do we have cross-classification data for them like those used in Table 8. The assembly and analysis of such data, particularly for the LDCs (but also for the DCs), would seem to be a first

priority task in further work in the field.

Still the discussion under point (b) is relevant to the situation in the LDCs. The life-cycle pattern of income per person in these countries may cover subperiods in which the families suffer unusual pressures of number on family income. Three conjectural comments may be advanced. First, in the preceding section, we observed that the rise in income per household from the youngest to the more advanced age-of-head classes was far more moderate in the LDCs than in the DCs--certainly in Taiwan, but also for the rural population in the Philippines. Second, with the much larger average household in the LDCs, the rise from the two-person family in the youngest age-of-head classes to the peak sizes at more advanced ages of head is not likely to be any lower, not only absolutely but also proportionately, than that found among families in the developed countries; and it could be greater. These two comments imply a more appreciable decline in income per person in the age-of-head class averages in the LDCs than in the DCs, as the size of family increases in the life cycle with advancing age of head; and both the peak of household size and the trough in the income per person may occur at more advanced ages of head in the LDCs than in the DCs. Finally, in view of the much lower per capita incomes in the LDCs, and lower growth rates in income per person over time, the pressures of number on household income over a substantial span of the family life cycle are also likely to be translated into greater declines in income per person that may mean acute deprivations; and certainly under conditions in which few reserves are available to cope with short-term deficiencies.

5. Size of Family or Household

The size of household, in the distribution of income by income per household, may be viewed not only as a demographic component, but also as a general characteristic of magnitude, which must be recognized and integrated into the measurement. As already indicated, differences in size of household do not make for meaningful comparisons of income among households, unless an adjustment for the number of producers or consumers in each household is first introduced. At best, unadjusted comparisons imply unrealistic assumptions of similarity in size of households in space or of stability in size over time. Consequently, one would have to consider size differences among households, even if the size changes in the life cycle of the household, or the close association between size and number of children in the household are of no concern. It would be useful to draw a line of distinction between the implications of the present discussion for the general adjustment for size of household and those for adjustments related to more specific characteristics of the life cycle of a household. Still, it must be recognized, particularly in the light of the evidence in Table 6 above on the age composition of households of different size and at different stages of the life cycle, that it is the children who are of key importance in affecting the size of the household. It follows that size and the demographic processes involved in family formation and dissolution are closely connected.

As we turn now to the effects of the size of the unit on the size-distribution of income among households, we begin again with recent data for the United States (Table 9). Panel A shows, for families, and for total units, the movements in per family or per unit income, with differences in the number of persons per family or per unit (lines 3 and 10).

The per family or per unit income clearly increases as we move from the one-person unit toward the larger ones. Thus, for families, per family income rises by almost forty percent as we move from the two-person to the five-person family; and for total units, including single individuals, the per unit income almost triples as we move from one-person to a five-person family. Interestingly enough, total income per family declines as we pass the peak at the five-person family; the drop is almost 6 to 7 percent from the peak, despite a substantial increase in the number of persons that can either produce the income or are to be supplied with it. Lest this decline from peak be ascribed to the inclusion of farm or rural families (and limitation to money income), we should note that a similar drop from a peak at the five-person family was observed for the 1950s among urban families in the United States (see Bureau of the Census, Trends in the Income of Families and Persons in the United States, 1947 to 1960, Technical Paper no. 8, Washington, 1963, Table 4).

A more striking finding in Panel A is that as we move from the smaller to the larger family unit, total income while increasing up to a point, does not compensate for the increasing number of persons, and does not allow for constant income per person (lines 6 and 13). On the contrary, income per person drops sharply as we move from the two-person family to larger units, so that the income per person of families with 7 and more persons (the average is 7.8 persons), is only about a third of the per person income in the two-person group. The negative association between the size of family or unit and income per person results in marked inequality in income per person among units classified by size (lines 7 and 14). This inequality presumably affects the size-distribution of income among persons, just as the income disparities among families or units classified by size would affect the size distribution of income among households. Here one should note that income disparities among persons are, on the average, wider than among families, with the TDMs and Gini coefficients for the former more than twice as large as those for the latter (lines 4 and 7, col. 8). Even for the distribution of all units, in which aggregate disparity in income of units classified by size is fairly wide, the TDM for the disparities in income per person is just as large, and the Gini coefficient only slightly lower (lines 11 and 14, col. 8). The suggestion

Table 9 Income Disparities, Families and Units Classified by Number of Persons, and by Income Per Family or Unit, United States, 1972

A.	Classes of Number of Persons in Unit							Total
	1	2	3	4	5	6	7 & over	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Families								
1. Share in income (%)	0	30.7	21.5	22.2	13.6	6.6	5.4	100.0
2. Share in number of families (%)	0	36.6	21.3	19.5	11.7	5.9	5.0	100.0
3. Income relative per family	0	0.84	1.01	1.14	1.16	1.12	1.09	1.00 (12.62)
4. Disparity in shares (lines 1 and 2)	0	-5.9	0.2	2.7	1.9	0.7	0.4	11.8 (0.075)
5. Share in number of persons(%)	0	21.0	18.4	22.4	16.8	10.2	11.2	100.0
6. Income relative per person	0	1.41	1.17	0.99	0.81	0.65	0.49	1.00 (3.63)
7. Disparity in shares (lines 1 and 5)	0	9.7	3.1	-0.2	-3.2	-3.6	-5.8	25.6 (0.178)
Units (families and unrelated individuals)								
8. Share in income (%)	11.2	27.3	19.1	19.7	12.0	5.9	4.8	100.0
9. Share in number of units (%)	23.6	28.0	16.3	14.9	8.9	4.5	3.8	100.0
10. Income relative per unit	0.48	0.97	1.17	1.32	1.35	1.31	1.27	1.00 (10.86)
11. Disparity in shares, lines 8 and 9)	-12.4	-0.7	2.8	4.8	3.1	1.4	1.0	26.2 (0.178)
12. Share in number of persons (%)	8.2	19.4	16.9	20.6	15.4	9.3	10.2	100.0
13. Income relative per person	1.37	1.41	1.13	9.96	0.78	0.63	0.47	1.00 (3.76)
14. Disparity in shares, (lines 8 and 12)	3.0	7.9	2.2	-0.9	-3.4	-3.4	-5.4	26.2 (0.173)

Table 9--continued

B. Income Disparities, Families and Units by Income per Family or Unit

	Classes of Income per Unit ($ 000s)								Total
	Below 2.0 (1)	2.0-3.9 (2)	4.0-5.9 (3)	6.0-7.9 (4)	8.0-9.9 (5)	10.0-14.9 (6)	15.0-24.9 (7)	25 & over (8)	(9)
Families									
15. Share in income (%)	0.2	2.0	3.9	6.0	8.0	25.3	33.9	20.7	100.0
16. Share in number of families (%)	3.5	8.2	9.9	10.8	11.2	26.1	23.0	7.3	100.0
17. Disparity (lines 15 and 16)	-3.3	-6.2	-6.0	-4.8	-3.2	-0.8	10.9	13.4	48.6 (0.345)
18. Persons per family	2.88	2.93	3.13	3.29	3.39	3.60	3.80	3.86	3.48
19. Share in number of persons (%)	2.9	6.9	8.9	10.1	10.8	26.9	25.1	8.4	100.0
20. Income relative per person	0.07	0.34	0.42	0.59	0.73	0.94	1.35	2.52	1.00 (3.63)
21. Disparity (lines 15 and 19)	-2.7	-4.9	-5.0	-4.1	-2.8	-1.6	8.8	12.3	42.2 (0.299)
22. Earners per family	0.70	0.75	1.08	1.20	1.55	1.77	2.18	2.34	1.65
23. Earners per person	0.24	0.26	0.35	0.39	0.46	0.49	0.57	0.61	0.45
Units (families and unrelated individuals)									
24. Share in income (%)	0.8	3.5	5.1	6.9	8.6	24.8	31.3	19.0	100.0
25. Share in number of units (%)	9.2	12.6	11.1	10.8	10.4	21.9	18.2	5.8	100.0
26. Disparity (lines 24 and 25)	-8.4	-9.1	-6.0	-3.9	-1.8	2.9	13.1	13.2	58.4 (0.401)
27. Persons per unit	1.55	1.96	2.45	2.75	2.96	3.36	3.70	3.75	2.89
28. Share in number of persons (%)	5.1	8.5	9.4	10.3	10.6	25.3	23.4	7.4	100.0
29. Income relative per person	0.15	0.41	0.54	0.67	0.81	0.98	1.34	2.53	1.00 (3.76)
30. Disparity (lines 24 and 28)	-4.3	-5.0	-4.3	-3.4	-2.0	-0.5	7.9	11.6	39.0 (0.28)
31. Earners per unit	0.46	0.61	0.98	1.19	1.42	1.70	2.13	2.28	1.40
32. Earners per person	0.30	0.31	0.40	0.43	0.49	0.51	0.58	0.61	0.48

Table 9--continued

C. Income Disparities, Persons Classified by Family or Unit Income per Person

	Classes of Income per Person ($ 000s)							Total
	Below 1.0 (1)	1.0-1.9 (2)	2.0-2.9 (3)	3.0-3.9 (4)	4.0-5.9 (5)	6.0-8.9 (6)	9.0 & over (7)	(8)
Families								
33. Share in total income (%)	1.4	7.8	12.0	18.1	19.9	23.1	17.7	100.0
34. Share in number of persons (%)	9.0	19.0	18.2	19.6	15.9	12.6	5.7	100.0
35. Income relative per person	0.16	0.41	0.66	0.92	1.26	1.83	3.07	1.00
36. Disparity (lines 33 & 34)	-7.6	-11.2	-6.2	-1.5	4.0	10.5	12.0	53.0 (0.366)
Units (families and unrelated individuals)								
37. Share in total income (%)	1.8	7.0	10.6	17.8	19.3	22.0	21.5	100.0
38. Share in number of persons (%)	10.5	17.4	16.7	20.2	15.8	12.4	7.0	100.0
39. Income relative per person	0.17	0.40	0.63	0.88	1.22	1.77	3.09	1.00
40. Disparity (lines 37 & 38)	-8.7	-10.4	-6.1	-2.4	3.5	9.6	14.5	55.2 (0.368)

Notes: Panels A and B

The underlying data are either from Table 1 above, or from the original source, Tables 1, 19, and 20. The averages of persons or earners for the top open-end class were calculated from the data in the source on total families, total persons, and total earners.

Table 9--continued

Notes--continued

According to the source, earners "include all persons... with $1 or more in wages and salaries, or $1 or more or a loss in net income from farm and nonfarm self-employment." (p. 13)

Panels C

Based on data in the same source, particularly Table 28 which shows the distribution of families by income, within each number of persons group (from 2 through 7 & over), and Table 19 which shows the same distribution by size of income for unrelated individuals.

For each of the 8 income classes distinguished in Table 9 and for each of the size-of-unit groups (including the one-person group of unrelated individuals) we calculated the number of persons represented, total income (using the size of income class means), and income per person. These fifty-six cells, with different per person income and different weights (number of persons represented) were then combined into the seven groups by income per person. For the open-end class of seven persons and over we used 7.8, the mean number for the country, derived from Table 20.

Entries in parentheses in the last column, lines 3,6,10,13,20, and 29, are the arithmetic mean income (in thousands of dollars), per family, per unit, or per person.

Entries in the last column of lines 4, 7, 11, 14, 17, 21, 26, 30, 36, and 40 are the TDMs, with the Gini coefficients in parentheses.

is that differentials in income per person among groups of households classified by size may contribute more variance to the size-distribution of income among persons than differentials in income per household for the same size-of-household classes contribute to the size-distribution of income among households. But this finding may depend on our converting to a per person rather than a per consuming or producing unit basis.

In Panel B, in addition to shares in number of families and units classified by size of income per family or per unit similar to Table 2, we show the shares of total persons and of earners. We also show the number of persons or earners per family for successive income-per-family classes. And here we find a positive correlation between a rise in income per household and the income per person and the income per earner. (If we had calculated income per earner in Panel A, it would also have shown a decline with the rise in the size of the household.)

The contradiction between the negative correlation of size of household with income per person or per earner (in Panel A) and the positive correlation between average number of persons or earners per household with per head income (in Panel B), is only apparent. The size of household variable is presented in its pure, and undiluted, form in Panel A; and it is in that panel that the true correlation between size of household and income per person or per earner is indicated. In Panel B the classification is by size of income per household. Low income households may include both small and large households, and even though the small may predominate, the effect of size is diluted by the mixture (note that the range in persons per family in line 18 is from 2.9 to 3.9--not from 2

to an average of 7.8). In other words, the positive association in Panel B emerges because the concentration on family income means a greater income effect than a size effect. This rather obvious comment is useful since it points up the error in correcting for the size of household by deriving such income relatives per person as are given in lines 20 and 29. This is an inadequate correction, and one must go back to the size classification (not the income classification), and derive for each size group the distribution per person (or per consumer, or per earner) and then form a new total distribution in which the base of classification is not income per household but income per person (or per consumer, or per earner).

Before we turn to the results of such a reclassification (in Panel C), two others comments on Panel B may be added. First, if one asks how the families (or total units) in lines 15-16 and 24-25 manage to attain increasing income per person as we move up the scale of income per family or per unit, part of the answer is provided by the ratios of earners to total persons (lines 23 and 32). The ratio of earners to persons more than doubles between columns 1 and 8 in both lines 23 and line 32. This means that the size of the household in the classification by income per household rises less than the number of earners per household; and, all other conditions being equal, this should make for increased income per person. Yet, in the size-distribution classification in Panel B this increasing ratio of earners suggests a relatively limited contribution--considering how much the income per person rises within the size distribution in lines 20 and 29.

Second, income disparities among persons (lines 21 and 30) are markedly narrower than income disparities among families or all units (lines 17 and 26). Given a positive association between size of income per family or unit, and persons per family or unit (lines 18 and 27), removal of the size-of-family variable by division by the average number of persons in each family or unit income class will necessarily reduce income disparities. But this does not mean that a properly constructed size-distribution of income among persons would necessarily show narrower income disparities than the size-distribution of income among households.

In Panel C we have an approximation to such a properly constructed distribution of income among persons. It is an approximation because instead of the millions of individual families and units, with the income of each reduced to a per person basis before aggregation, we have only 48 or 56 cells, derived from a cross-classification of eight family or unit income classes by six or seven size-of-unit classes (the seven including the unrelated individuals); and each cell mean, of income per person, can conceal a fair amount of variance. The results may, therefore, understate income disparities in the size distribution of income among persons, but one may reasonably assume that the relative understatement would not be large.

The disparity measures in Panel C suggest two observations, one obvious and the other more meaningful. The obvious one is that the disparity in income per person shown in Panel C is markedly wider than the disparity income per person in Panel B. The TDM and Gini coefficients for persons in families are at least a fifth higher in Panel C than in

Panel B (compare line 36, col. 8 with line 21, col. 8); the measures for all units are between three-tenths and four-tenths higher in Panel C than in Panel B (compare line 40, col. 8, with line 30 col. 8). These are rather large differences for aggregate measures as insensitive as the TDM and the Gini coefficient. The result is obvious because a population of units classified by a proper base of the variable (here, per person income) would always show more variance than the same population of units classified by a base that is not of the magnitude of the variable itself (in Panel B, income per family or unit).

The more interesting result is suggested by comparing income disparities in Panel C, for size distributions of income among persons, with those in Panel B that relate the size distributions of income among families or all units (in lines 17 and 26). Here we find that the inequality in income per person in families is wider than inequality in income per family, in the two comparably constructed distributions--the measures being about a tenth higher in Panel C. When we compare the distribution for all units by income per unit with the one by income per person, the disparities in the latter appear to be somewhat narrower--by about a tenth (lines 40 and 26). With a lower weight of unrelated individuals than is now the case in the United States data for 1972, the measures in the two distributions would probably not differ much.

But these comparisons of aggregate measures of income disparities are far less revealing than the shift of identity of family or unit groups at the upper and lower ranges of income, when we move from the distribution among households to the distribution among persons in households (Table 10).

The results in Table 10 are implied in the negative association between income per person and size of household, and the positive association between income per household and size of household, both found in Table 9; but this implication is made explicit here.

Panel A reflects the structure within the distribution of income among all units by income per unit. The lower income brackets are dominated by the small units--of one to two persons each, which account for well over eight-tenths of the units in the lowest three income classes (columns 1-3, lines 2 and 3). The upper income brackets, however, contain few single-person units and a higher percentage of larger families (say over three or four persons) than their share in the distribution of all units by size (compare columns 7 and 8, lines 2-8 with column 9). The shares of the larger units, five persons and over, are from two to three times their share in the total population.

Panel B reflects the structure within the size-distribution of income among persons, in units classified by income per person. Here the upper income brackets are dominated by the small units. No unit larger than three persons falls in the highest income class, and even the next highest class is dominated by the smaller size units (see columns 6 and 7, lines 10-16). The large units are far more dominant in the lower income brackets of income per person. The share of units with five persons and over is over 50 percent in the three lowest income per person classes, while their share in the total population of units is only slightly over a third.

The change in the identity of families or units at upper and lower levels of the size distribution as we shift from the distribution of households by income per household to the distribution of persons in households by income per person, has greater bearing than changes in aggregate disparity measures like the TDM and Gini coefficient. This simple conversion to a per person basis may exaggerate the change, and is subject to other limitations. Yet even a substantial downward adjustment to allow for the lower weight of children as consuming units (and possibly even economies of scale) of the type used in the Appendix still shows per consumer unit income declining as we move from the smaller to the larger households. The implication of Table 10 is then that the conventional size-distribution of income among households may incorrectly identify the "poor" and the "rich". A large household classified as rich because of a high total household income may actually be poor, with quite a low income per person, while a household classified as poor may actually be rich, because if it is small, its income per person may be quite high. And this means that all the associated characteristics need to be reconsidered. Of course, such dangers are usually avoided by closer analysis of the household groups; but there is little reason to persist in an approach that, in its standard form, can be misleading.

Finally, whether for the distribution among households by income per household, or among persons in households by per person income of households, the income disparities reflect differences within the life cycle of a household; and may be compatible with identical lifetime incomes, either per household or per person. The difference between the

Table 10 Comparison of Structures within Size-of-Income Classes, Distribution of Income among Units by Income per Unit, and among Persons in Units by Income Per Person, United States, 1972

A. Distribution among Units by Income per Unit

	Income Classes ($ 000)								Total
	Below 2.0 (1)	2.0-3.9 (2)	4.0-5.9 (3)	6.0-7.9 (4)	8.0-19.9 (5)	10.0-14.9 (6)	15.0-25.9 (7)	25 and over (8)	(9)
1. Share in total units (%)	9.2	12.6	11.1	10.8	10.4	21.9	18.2	5.8	100.0
Distribution of Units by Size (%)									
2. 1 person	71	50	33	23	18	9	4	5	23.6
3. 2 persons	16	29	36	35	30	28	25	24	28.0
4. 3 persons	6	9	13	16	20	21	20	19	16.3
5. 4 persons	3	5	8	12	15	20	24	23	14.9
6. 5 persons	2	3	4	7	9	12	14	16	8.9
7. 6 persons	1	2	3	3	4	6	7	8	4.5
8. 7 persons & over	1	2	3	4	4	4	6	5	3.8

B. Distribution among Persons in Units Classified by Income per Person

	Classes of Units by Income Per Person ($ 000)							Total
	Below 1.0 (1)	1.0-1.9 (2)	2.0-2.9 (3)	3.0-3.9 (4)	4.0-5.9 (5)	6.0-8.9 (6)	9.0 and over (7)	(8)
9. Share in total persons (%)	10.5	17.4	16.7	20.2	15.8	12.4	7.0	100.0
Distribution of Persons by Size of Unit (%)								
10. 1 person	22	0	0	11	8	7	24	8.2
11. 2 persons	9	15	16	13	14	34	59	19.4
12. 3 persons	5	15	11	10	30	31	17	16.8
13. 4 persons	13	18	13	30	37	15	0	20.6
14. 5 persons	9	22	27	23	0	13	0	15.4
15. 6 persons	14	9	16	13	6	0	0	9.3
16. 7 persons & over	28	21	17	0	5	0	0	10.3

Table 10--continued

Notes: Panel A is derived directly from the cross-classification of families by size and income of families in Table 28, and that of unrelated individuals by their income classes in Table 19 of the source used for Table 1 (see notes to Table 9).

Panel B is derived from the cells underlying the analysis in Panel C of Table 9, and described in the notes to it.

per household and per person distributions is in the pattern of movement through the successive phases of the life cycle, and hence in the specific variance contributed by one component to the total cross-section size distribution that also reflects other components.

6. Size of Household--Other Illustrations

In this section we again present summary data for Israel, Taiwan, and the Philippines. Several findings are similar for the three countries, and confirm those suggested for the United States. But detail varies; and it may be useful to deal with each country separately, if briefly.

In the case of Israel, we find substantial differences in income per household with differences in size of household; and even sharper peaking of income to the household of four persons, followed by a sharper decline to the larger household than for the United States families (Table 11, line 3). This pattern of decline in per household income for larger units may reflect the ethnic composition of the urban households, since these larger units are dominated by those originating in Asia and Africa (as distinct from those originating in Europe and America, and the Israeli born) and having lower average incomes.

Income per person drops sharply as we move from the smaller to the larger households (line 6), and with this conspicuous negative correlation, total disparity in per person income is almost twice as large as the disparity in per household income among the households classified by size (lines 4 and 7, col. 7). In all of these respects, the findings for Israel are an accentuated replica of those for U.S. families in Panel A of Table 9.

Table 11 Income Disparities, Urban Households Classified by Number of Persons and by Income per Household, Israel, 1968/69

	A. Classes by Number of persons in household						Total
	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 and over (6)	(7)
1. Share in total gross income (%)	4.8	19.8	21.4	27.9	12.6	13.5	100.0
2. Share in number of households (%)	10.9	23.0	19.0	21.4	11.4	14.3	100.0
3. Income relative per household	0.44	0.86	1.13	1.30	1.10	0.94	1.00
4. Disparity in shares (lines 1 & 2)	-6.1	-3.2	2.4	6.5	1.2	-0.8	20.2 (0.135)
5. Share in number of persons (%)	3.0	12.6	15.6	23.4	15.6	29.8	100.0
6. Income relative per person	1.60	1.57	1.37	1.19	0.81	0.47	1.00
7. Disparity in shares (lines 1 and 5)	1.8	7.2	5.8	4.5	-3.0	-16.3	38.6 (0.236)

	B. Income per household Classes (in IL pounds per month)							
	Below 300 (1)	300-599 (2)	600-799 (3)	900-999 (4)	1,000-1,199 (5)	1200-1499 (6)	1,500 and over (7)	Total (8)
8. Share in income (%)	2.7	9.6	14.1	15.8	13.7	17.1	27.0	100.0
9. Share in number of households (%)	12.6	22.2	17.9	15.3	10.7	10.5	10.8	100.0
10. Disparity (lines 8 & 9)	-9.9	-12.6	-3.8	0.5	3.0	6.6	16.2	52.6 (0.363)
11. Persons per household	2.1	3.6	3.9	4.0	4.3	3.7	3.9	3.7
12. Share in number of persons (%)	7.3	21.9	19.2	16.8	12.6	10.7	11.5	100.0
13. Income relative per person	0.37	0.44	0.73	0.94	1.09	1.60	2.35-	1.00
14. Disparity (lines 8 and 12)	-4.6	-12.3	-5.1	-1.0	1.1	6.4	15.5	46.0 (0.315)

Table 11--continued

Panel B--continued

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
15. Earners per household	0.4	1.0	1.2	1.4	1.6	1.7	2.0	1.3
16. Earners per person	0.19	0.28	0.31	0.35	0.38	0.46	0.51	0.35+

Notes: Based on Table 3 above, or the source cited for that table (Tables 1 and 5 in the source, pp. 4 and 8).

Entries in the last column of lines 4,7,10. and 14 are the TDMs, with the Gini coefficients in parentheses.

We also observe in Panel B the positive association between income per household (when classified by household income) and the number of persons. But, this association is qualified by the ethnic diversity, which probably accounts for the failure of the number of persons per household to rise beyond a peak of 4.3 in the 1,000 to 1,199 Israeli pound class (line 11, col. 5), followed by a substantial drop in size of household in the two top income groups. Nevertheless, as expected, the income disparity among persons in households classified by income per household is significantly narrower than that among households (compare, col. 7 lines 14 and 10).

But far more interesting findings are revealed in Table 12, which summarizes the results of shifting from the distribution of households, by income per household, to the distribution of persons in households, by per person income of household. Two observations are relevant to this table. First, the grouping of households into deciles, income per household, and by income per person per household, is directly from the source. We did not need to compute it from cells in a cross-classification table, as was necessary for the United States in Table 10 above, or for Taiwan in Table 15 below . Second, the source provides some additional detail on the age composition of households, at higher and lower deciles of both distributions--a relevant detail that is not at hand for the other countries.

Lines 1-4 of Panel A, showing distribution of households in deciles by income per household, are comparable with that in Panel B of Table 3

(lines 5-9) which show the same distribution by income per household classes. The disparity measures are somewhat greater : the TDM is 54.2, compared with 52.6 in Table 3 and the Gini coefficient is .371 and .363 respectively. But this minor difference is not significant, and only reflects the greater sensitivity of the deciles.

The disparities in income per person, in the distribution based on per person income of households, are appreciably wider--the aggregate measures being about a tenth greater (compare lines 4 and 8, column 8). This finding is similar to that for U.S. families in 1972, although not for the distributions of all units.

Panel B shows the shifts in the identity of household groups at the lower and upper ranges of income as we move from the distribution among households to that among persons. As for the United States, in the conventional distribution of households by income per household the smaller units dominate the lower income brackets and the larger dominate the upper levels, but the reverse is true in the distribution among persons (in households) by per person income of households. The average number of persons per household rises with the rise in per household income, at least through the 7th and 8th deciles (line 15); and the average number of persons declines with the rise in per person income, from over 5.5 persons in the lowest decile, to 2.3 persons in the top decile (line 25).

Of particular interest are the distributions of persons within households by age, for the conventional size-distribution of income among households and for persons in deciles of <u>households</u> by per person income (but the results would be about the same for persons by their per

Table 12 Distribution of Households by Gross Money Income per Household and of Persons in Households by Gross Money Income per Person, Urban Households, Israel, 1968/69

A. Disparities in Income

	Deciles							Total
	1st.	2nd.	3rd.+ 4th.	5th.+ 6th.	7th.+ 8th.	9th.	10th.	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Households, by Income Per Family								
1. Share in total income (%)	1.5	3.3	11.4	17.1	24.2	16.5	26.0	100.0
2. Share in number of households (%)	10.1	10.1	20.1	20.1	20.1	10.0	9.5	100.0
3. Income relative per household	0.15	0.32	0.57	0.85+	1.20	1.65+	2.71	1.00
4. Disparity in shares	-8.6	-6.8	-8.7	-3.0	4.1	6.5	16.5	54.2 (0.371)
Households, by Income Per Person								
5. Share in total income (%)	3.6	4.4	13.2	18.0	23.6	16.0	21.2	100.0
6. Share in number of persons (%)	15.7	11.3	22.2	19.7	17.2	7.9	6.0	100.0
7. Income relative per person	0.23	0.39	0.59	9.91	1.38	2.02	3.55+	1.00
8. Disparity in shares	-12.1	-6.9	-9.0	-1.7	6.4	8.1	15.2	59.4 (0.396)

Table 12--continued

	B. Structure Within the Income Classes, by Size of Households and All of Persons							
	Deciles							Total
	1st.	2nd.	3rd.+ 4th.	5th.+ 6th.	7th.+ 8th.	9th.	10th.	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Households, by Income per Household								
Structure of households by size of households (%)								
9. 1 person	47	21	10	6	3	1	0	10.9
10. 2 persons	39	43	24	18	15	16	17	23.0
11. 3 persons	6	12	19	21	22	23	25	19.0
12. 4 persons	4	6	16	22	28	36	38	21.4
13. 5 persons	3	7	11	13	16	13	11	11.4
14. 6 persons & over	1	11	20	20	16	11	9	14.3
15. Average number of persons per household	1.78	2.84	3.90	4.07	4.12	3.88	3.81	3.64
Structure by age of persons (%)								
16. Below 15	13.1	27.1	38.3	36.9	32.5	29.7	26.8	32.5+
17. 15-64	43.3	51.8	55.4	59.9	63.6	66.5	69.1	59.8
18. 65 & over	43.6	21.1	6.3	3.2	3.9	3.8	4.1	7.7
Households, by Income Per Person								
% Structure of Persons by Size of households (%)								
19. 1 person	1	4	3	2	3	5	10	3.0
20. 2 persons	6	13	9	9	15	19	37	12.6
21. 3 persons	4	6	9	19	27	28	30	15.6
22. 4 persons	6	9	20	34	36	38	20	23.5+
23. 5 persons	10	15	22	22	14	8	2	15.7
24. 6 persons & over	73	53	37	14	5	2	1	29.6
25. Average number of persons per household	5.67	4.09	4.03	3.57	3.14	2.86	2.29	3.64
Structure by age of persons (%)								
26. Below 15	51.9	40.1	35.8	26.7	24.1	22.1	12.0	32.5+
27. 15-64	41.6	46.8	55.9	66.7	70.2	70.4	80.7	59.8
28. 65 & over	6.5+	13.1	8.3	6.6	5.7	7.5+	7.3	7.7

Table 12--continued

Notes: Taken from Tables 35 and 36 of the source cited for Tables 3 and 11 for the deciles of households by gross money income per household (pp. 38-39); and from Tables 41 and 42, pp. 44-45, for the deciles of households by gross money income per person. The deciles shown in numbers are approximate; and the minor deviations of the shares in line 3 from 10 and 20 percent had to be taken into account.

The distribution of households, by income per household, is the conventional form of the size-distribution of income among families or households. In the alternative distribution, households are ranked by per person income, and the deciles recalculated --but again for households. (These are not deciles within the total population of persons, as is evident from the deviations of the shares in line 6 from 10 and 20 percent respectively.)

Entries in the last column of lines 4 and 8 are, as usual, the TDMs, and the Gini coefficients in parentheses.

person income derived from household data). In the conventional distribution, the higher income households have much larger proporions of persons under 15, presumably the children of the family, this proportion rising from 13 percent in the lowest decile to about 30 percent in the other deciles; and the trend is in the opposite direction for the share of the older persons, 65 and over, which is high in the low income deciles (over 40 percent in the lowest) and declines to small fractions in the high income deciles (lines 16 and 18). In the distribution of persons in households by per person income, the movement of the shares of quite different. The share of children, at over 50 percent in the lowest decile, is the highest and declines steadily and significantly to well below 20 percent in the top decile (line 2b). By contrast, the share of persons 65 and over shows more variation among the deciles, but little sustained trend from the lower to the higher deciles (line 28). The result for the share of children is particularly interesting, for it suggests that in the distribution of income among persons, concentration of children is greater at the lower income levels. Children are more heavily represented among households with low income per person than are the adults, either in working ages or even in the more advanced ages (see discussion of this finding, based on United States data, in my paper, "Income-Related Differences in Natural Increase: Bearing on Growth and Distribution of Income," in Paul David and Melvin W. Reder, eds. Nations and Households in Economic Growth: Essays in Honor of Moses Abramovitz, Academic Press, New York and London, 1974, pp. 127-146).

The distribution of households by size in Taiwan in 1972 shows a greater proportion of large households and an appreciably higher average size of household than that in either the United States or Israel. In the United States, even among families, the proportion of households with six persons or more was only 11 percent (Table 9, line 2, col. 6 and 7), and the average family comprised 3.47 persons (Table 8, line 9, col. 5). In Israel the proportion of households with six persons or more amounted to 14 percent and the average size of the household was 3.7 persons (Table 11, line 2, col. 7 and line 11, col. 8). The proportion of these large households in Taiwan was 48.3 percent (Table 13, line 2, columns 6-8), and the average household comprised 5.6 persons. Such differences in the distribution of households by size, and in the average size of the household, are generally found between DCs and LDCs.

The association between household size and household income is positive in Taiwan. Indeed, unlike the findings for United States and Israel, per household income rises continuously as we move from smaller to larger households, without the break at some size before the largest and decline in the larger household classes (line 3). Interestingly, this consistent, uninterrupted rise in household income with increase in size of household is found for all three subdivisions distinguished, Taipei City, nonfarmer households in Taiwan province, and farmer households (lines 10, 17, and 24).

Still, the negative association between size of household and per person income is marked and consistent--for the whole of Taiwan and

Table 13 Income Disparities, Households Classified by Size, Taiwan and Subdivisions, 1972

	Classes by Number of Persons								Total
	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	8 & over (8)	(9)
Taiwan									
1. Share in income (%)	1.4	2.8	7.7	12.5	20.9	19.6	13.7	21.4	100.0 (167.7)
2. Share in number of households (%)	3.3	4.1	9.3	13.8	21.2	19.3	12.6	16.4	100.0 (2,772)
3. Income relative per household	0.45	0.68	0.83	0.91	0.99	1.02	1.09	1.30	1.00 (60.5+)
4. Disparity (lines 1 and 2)	-1.9	-1.3	-1.6	-1.3	-0.3	0.3	1.1	5.0	12.8 (0.101)
5. Share in number of persons (%)	0.6	1.5	5.0	9.9	19.1	20.8	15.7	27.4	100.0 (15,477)
6. Income relative per person	2.33	1.87	1.54	1.26	1.09	0.94	0.87	0.78	1.00 (10.8)
7. Disparity (lines 1 and 5)	0.8	1.3	2.7	2.6	1.8	-1.2	-2.0	-6.0	18.4 (0.122)
Taipei City									
8. Share in income (%)	2.4	3.7	9.0	16.1	20.0	20.0	12.0	16.8	100.0 (33.3)
9. Share in number of households (%)	5.6	4.9	10.9	16.4	19.8	18.7	10.9	12.8	100.0 (401)
10. Income relative per household	0.43	0.76	0.82	0.98	1.01	1.07	1.10	1.31	1.00 (83.1)
11. Disparity lines 8 and 9	-3.2	-1.2	-1.9	-0.3	0.2	1.3	1.1	4.0	13.2 (0.103)
12. Share in number of persons (%)	1.1	1.9	6.4	12.7	19.2	21.7	14.9	22.1	100.0 (2,067)
13. Income relative per person	2.22	1.96	1.66	1.27	1.04	0.92	0.81	0.76	1.00 (16.1)
14. Disparity (lines 8 and 12)	1.3	1.8	2.6	3.4	0.8	-1.7	-2.9	-5.3	19.8 (0.138)

Table 13--continued

	Groups by Number of Persons								Total
	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	8 & over (8)	
Taiwan Province, Nonfarmer Households									
15. Share in income (%)	1.4	2.8	8.5	13.6	23.9	20.0	13.8	16.0	100.0 (99.3)
16. Share in number of households (%)	3.4	4.3	10.1	15.5	24.1	19.1	12.0	11.5	100.0 (1,655)
17. Income relative per household	0.41	0.65	0.84	0.88	0.99	1.05	1.15	1.39	1.00 (60.0)
18. Disparity (lines 15 and 16)	-2.0	-1.5	-1.6	-1.9	-0.2	0.9	1.8	4.5	14.4 (0.111)
19. Share in number of persons (%)	0.6	1.6	5.7	11.7	22.8	21.7	16.0	19.9	100.0 (8,757)
20. Income relative person	2.18	1.72	1.49	1.16	1.05	0.93	0.86	0.80	1.00 (11.3)
21. Disparity (lines 15 and 19)	0.8	1.2	2.8	1.9	1.1	-1.7	-2.2	-3.9	15.6 (0.105)
Taiwan Province, Farmer Households									
22. Share in income (%)	0.6	1.8	4.3	6.2	13.6	17.9	14.8	40.8	100.0 (35.1)
23. Share in number of households (%)	1.8	3.4	6.4	8.2	16.3	20.0	14.8	30.1	100.0 716)
24. Income relative per household	0.33	0.53	0.67	0.76	0.89	0.90	1.00	1.36	1.00 (49.0)
25. Disparity (lines 22 and 23)	-1.2	-1.6	-2.1	-2.0	-1.7	-2.1	0	10.7	21.4 (0.154)
26. Share in number of persons (%)	0.3	1.1	3.0	5.1	11.8	18.6	16.0	44.1	100.0 (4,653)
27. Income relative per person	2.24	1.71	1.47	1.22	1.15	0.97	0.92	0.93	1.00 (7.54)
28. Disparity (lines 22 and 26)	0.3	0.7	1.3	1.1	1.8	-0.7	-1.2	-3.3	10.4 (0.062)

Table 13--continued

Notes: For Taiwan province the data were taken or calculated from the source used for Table 4 above (Table 3, pp. 50-81 and Table 25, pp. 416-423). For Taipei City the data, kindly provided with English headings by Mrs. Wanyong Kuo (of Economic Planning Council of Taiwan), were from Report on the Survey of Family Income and Expenditures of Individual Income in Taipei City (Taipei, 1973, in Chinese, Table 16, pp. 104-107).

Entries in parentheses in the last column of lines 1, 8, 15, and 22 refer to total income (in billion of Taiwan dollars); in lines 2, 9, 16, and 23 to the number of households (in thousands); in lines 3, 10, 17, and 24 to income per household (in thousands of Taiwan dollars); in lines 4, 7, 11, 14, 18, 21, 25, and 28 to the Gini coefficients; in lines 5, 12, 19, and 26, to number of persons (in thousands); in lines 6, 13, 20, and 27 to income per person (in thousands of Taiwan dollars).

The various measures were calculated from a classification that distinguished size classes up to the 10 and over class (with the presentation condensed here to save space). To derive the number of persons for the ten and over class we used the ten person group given in the source, and assigned a mean of 12 to the group of 11-14, and one of 17 to the 16 and over group (top open-end group in the source).

for the three subdivisions. The per person income relative declines sharply and consistently from above 2.0 for the smallest households to well below 1.0 for the larger (lines 6, 13, 20, and 27). But total disparity in per person income, among households classified by size, is greater than that in per household income only in Taiwan, and Taipei City (compare lines 4 and 7, and 11 and 14, col. 9). For the nonfarmer households in Taiwan province, the two sets of disparities are not very different (lines 17 and 21, col. 9); and for the farmer households, the per person disparities are far smaller than those in income per household (lines 28 and 29, col. 9).

Two findings for the Taiwan subdivisions deserve note here. First, since they differ from the results shown for the Philippines below, we should observe that the differences among the three subdivisions are what we would expect. Thus, the share of the smaller households (one and two persons) is largest in Taipei City, 10.5 percent; next largest among the nonfarmer households in Taiwan Province, 7.7 percent; and smallest among the farmer families, 5.2 percent (columns 1 and lines 9, 16, and 23). By contrast, the share of the larger households (six and over) is lowest in Taipei City, 42.2 percent somewhat larger among the nonfarmer households, 42.6 percent; and strikingly larger among the farmer households, 65.0 percent (columns 6-8, lines 9, 16, and 23). The average household size is 5.15 persons for Taipei City, 5.29 persons for the nonfarmer households outside Taipei, and 6.48 for the farmer households.

Second, the disparities in income per household within these three subdivisions differ significantly from those for income per person (both for households classified by size). The smallest disparity in income per

household is for Taipei City, with a TDM of 13.2 and a Gini coefficient of 0.103 (line 11, col. 9); the next larger is for the nonfarmer households outside Taipei, with 14.4 and 0.111 respectively; and by far the largest is for the farmer households, with 21.4 and 0.154 respectively (col. 9, lines 11, 18, and 25). But with conversion to per person income, the order of the disparity is reverse. On the basis of per person income, Taipei City shows the largest disparity, with a TDM of 19.6 and a Gini coefficient of 0.138; the next largest is for nonfarmer households outside Taipei, with 15.6 and 0.105 respectively; and by far the smallest is for the farmer households, with 10.4 and 0.062 respectively (col. 9, lines 14, 21, and 28). Thus the income disparity contributed by size of households to the total distributions based on per household income differs from that based on per person income. The result is quite similar for the total disparities in the complete distributions of income by size among households and among persons.

These distributions are shown in Tables 14 and 15. Table 14 presents the conventional size-distribution of income among households, by income per household, for Taiwan as a whole and for the three subdivisions. The disparities are fairly substantial; and as already shown in Table 13 per household income, as might be expected, is appreciably larger in Taipei City than in the province, and larger among the nonfarmer than among the farmer families. These expected income differentials become, of course, even wider when converted to a per person basis (see Table 13, lines 10, 13, 17, 20, 24, 27, col. 9).

Two distinctive aspects of Table 14 deserve note. One relates to the movement in the ratio of earners to persons, for classes by increasing income per household, available for the nonfarm and farm household groups (together accounting for over 80 percent of all households and an even higher proportion of total population). For United States families and all units, the ratio of earners to persons rises markedly within classes of households by rising income per household, presumably contributing to the positive association, in this classification, between size of household and per person income within household. For U.S. families and all units, the ratio for the highest income per household class is more than twice that for the lowest (see Table 9, lines 23 and 32). For Israel also the ratio of earners to persons rises markedly from the lower to the higher income per household classes, almost tripling (see Table 11, line 16). The corresponding ratios for Taiwan, either among the nonfarmer households outside of Taipei, or among the farmer households, show no such rise. The rise in the ratios, once we are past the lowest income classes, is slight: only from 0.29 to about 0.36, and from 0.42 to between 0.47 and 0.49 (Table 14, lines 17 and 24). This may be due to the definition of "earner"; but is more likely to be associated with a different structure of households by age of head, as we move from the smaller to the larger, and the lower to the higher income households. Yet the positive association between size and income per person within household, in this classification by income per household, is as marked for Taiwan and its three subdivisions as it is for the United States and Israel: income <u>per person</u> would be rising markedly and consistently in the movement from the lower to higher income per household classes in Taiwan and in its three subdivisions.

Table 14 Income Disparities, Households Classified by Income Per Household, Taiwan and Subdivisions, 1972

	Classes by Income per Household (000s NTS)							Total
	Below 25 (1)	25-39 (2)	35-49 (3)	45-59 (4)	60-89 (5)	90-149 (6)	150 & over (7)	(8)
Taiwan, Total								
1. Share in income (%)	2.4	6.8	12.0	19.7	28.0	21.8	9.3	100.0
2. Share in number of households (%)	7.5-	13.5+	18.1	22.9	23.4	11.8	2.8	100.0
3. Income relative per household	0.32	0.50	0.66	0.86	1.20	1.84	3.64	1.00
4. Disparity in shares	-5.1	-6.7	-6.1	-3.2	4.6	10.0	6.5	42.2 (0.286)
5. Persons per household	3.22	4.68	5.30	5.68	6.20	6.73	7.28	5.58
Taipei City								
6. Share in income (%)	0.6	2.0	5.2	12.2	25.6	32.4	22.0	100.0
7. Share in number of households (%)	2.4	5.6	10.6	19.4	29.4	23.6	9.0	100.0
8. Income relative per household	0.25	0.36	0.49	0.63	0.87	1.37	2.44	1.00
9. Disparity in shares	-1.8	-3.6	-5.4	-7.2	-3.8	8.8	13.0	43.6 (0.288)
10. Persons per household	1.67	2.93	4.02	4.93	5.42	6.01	6.19	5.17
Taiwan Province, Nonfarmer Households								
11. Share in income (%)	1.7	6.5	12.5	21.2	30.2	21.5	6.4	100.0
12. Share in number of households (%)	5.5	12.7	18.8	24.4	24.9	11.7	2.0	100.0
13. Income relative per household	0.31	0.51	0.66	0.87	1.21	1.84	3.20	1.00
14. Disparity in shares	-3.8	-6.2	-6.3	-3.2	5.3	9.8	4.4	39.0 (0.262)

Table 14--continued

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Taiwan Province, Nonfarmer--concluded								
15. Persons per household	2.51	4.24	4.97	5.34	5.90	6.52	7.19	5.29
16. Earners per household	0.98	1.24	1.44	1.56	1.92	2.35	2.53	1.67
17. Earners per person	0.39	0.29	0.29	0.29	0.33	0.36	0.35	0.32
Taiwan Province, Farmer Households								
18. Share in income (%)	6.0	12.1	16.7	22.8	24.1	12.6	5.7	100.0
19. Share in number of households (%)	14.9	19.8	20.6	21.4	16.4	5.6	1.3	100.0
20. Income relative per household	0.40	0.61	0.81	1.07	1.47	2.25	4.38	1.00
21. Disparity in shares	-8.9	-7.7	-3.9	1.4	7.7	7.0	4.4	41.0 (0.284)
22. Persons per household	3.97	5.60	6.36	6.96	8.02	9.47	11.40	6.50-
23. Earners per household	1.77	2.37	2.83	3.33	3.79	4.80	5.36	2.98
24. Earners per person	0.45	0.42	0.44	0.48	0.47	0.49	0.47	0.46

Notes: For sources and other details see notes to Table 13.

Entries in parentheses in the last column of lines 4, 9, 14, and 21, are the Gini coefficients.

Table 15 Disparities in Income Per Person, Households Classified by Income per Person, Taiwan and Subdivisions, 1972

	Classes by Income per Person (000s, NT$)								Total
	Below 5.0 (1)	5.0-5.9 (2)	6.0-8.9 (3)	9.0-11.9 (4)	12-14.9 (5)	15-19.9 (6)	20-24.9 (7)	25 & over (8)	(9)
Taiwan, Total									
1. Share in income (%)	2.7	5.9	17.1	21.8	21.9	10.4	9.4	10.8	100.0
2. Share in number of persons (%)	7.2	11.7	25.5	23.9	17.5	6.2	4.8	3.2	100.0
3. Income relative per person	0.37	0.50	0.65	9.92	1.25	1.67	1.96	3.34	1.00
4. Disparity in shares	-4.5	-5.8	-8.4	-2.1	4.4	4.2	4.6	7.6	41.6 (0.287)
Taipei City									
5. Share in income (%)	0.3	0.6	8.1	11.6	20.5	19.9	10.2	28.8	100.0
6. Share in number of persons (%)	1.1	1.8	16.8	18.0	24.5	18.2	7.1	12.5	100.0
7. Income relative person	0.27	0.33	0.48	0.64	0.84	1.09	1.44	2.30	1.00
8. Disparity in shares	-0.8	-1.2	-8.7	-6.4	-4.0	1.7	3.1	16.3	42.2 (0.285)
Taiwan Province, Nonfarmer Households									
9. Share in income (%)	1.2	3.6	16.5	24.9	25.8	7.7	12.0	8.3	100.0
10. Share in number of persons (%)	3.3	7.2	25.6	28.5	21.5	4.6	6.6	2.7	100.0
11. Income relative per person	0.36	0.50	0.64	0.97	1.20	1.67	1.82	3.07	1.00
12. Disparity in shares	-2.1	-3.6	-9.1	-3.6	4.3	3.1	5.4	5.6	36.8 (0.248)

Table 15--continued

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Taiwan Province, Farmer Households									
13. Share in income (%)	9.0	17.2	27.0	23.0	12.6	9.2		2.0	100.0
14. Share in number of persons (%)	17.1	24.6	29.2	17.7	7.0	4.0		0.4	100.0
15. Income relative per person	0.53	0.70	0.92	1.30	1.80	2.30		5.00	1.00
16. Disparity in shares	-8.1	-7.4	-2.2	5.3	5.6	5.2		1.6	35.4 (0.228)

Notes: For sources see notes to Table 13. The distribution of income and persons were derived from the classification by per person income of cells formed by size-of-household classes and the size-of-income per household classes (of the type given in Tables 13 and 14).

Entries in parentheses in the last column of lines 4, 8, 12, and 16 are the Gini coefficients.

The second aspect worth noting is the difference in total disparity between the conventional size-distribution of income among households in Table 14, column 8, and the distributions among persons by per person income of households in Table 15, column 9. In Table 14, the TDM for Taiwan is 42.2, and the Gini coefficient 0.286; and among the subdivisions it is largest for Taipei City, next largest for farmer households, and the lowest for the nonfarmer households outside Taipei (lines 4, 9, 14, and 21). The differences for the subdivisions are slight, the TDMs ranging from 39.0 to 43.6, and the Gini coefficients only from 0.262 to 0.288. But the order is surprising. One may conjecture that the total disparity in the conventional size distribution of income for the farmer families in Table 14 was raised by the rather large contribution of the disparity in income per household associated with differences in size of household observed in Table 13.

Table 15 shows the distribution among persons for households classified by per person income (based on cells derived from the relevant cross-classifications of households by income and by size). We have already observed the negative correlation between household per person income and size, and the positive correlation between household income per household and size. As a result, the internal structure in the distributions in Table 15 and 14 would be similar to that for the United States in Table 10 and for Israel in Table 12--with smaller households being high in the distribution by per person income and low in the distribution by household income, and larger households being low and high in the same two distributions. It did not seem necessary to show once

more this change in identity of households which would be observed for Taiwan, and within each of its three subdivisions.

We, therefore, limit Table 15 to the data needed to derive the total disparity measures for the distributions among persons by per person income (column 9, 4, 8, 12, and 16). Comparing them with similar measures in Table 14, we find two intriguing results. First, for Taiwan as a whole, and Taipei City, the two sets of total disparity measures are fairly close, with those in Table 15 only slightly lower. But this result is quite different from those found for U.S. families and Israel, in which conversion to a per person basis amplified total disparity, compared with that in the conventional size distribution among households. More interesting, the shift to a per person basis reduces total disparity more significantly for the nonfarmer households outside Taipei--the TDM drops from 39.0 to 36.8 and the Gini coefficient from 0.262 to 0.248 (compare line 4, col. 8 of Table 14 with line 12, col. 9 of Table 15); and even more strikingly for the farm households--the TDM drops from 41.0 to 35.4 and the Gini coefficient from 0.284 to 0.228 (compare line 21, col. 8 of Table 14 with line 16, col. 9, of Table 15).

Second, as a result of the different effect on total disparity of the shift from the per household to the per person distribution, the order of magnitude of total disparity among the three subdivisions changes. On the per person basis, in Table 15, the widest disparity is observed for Taipei City, the next widest for the nonfarmer households outside Taipei, and the narrowest for the farmer households; and the range in the TDMs from 42.2 to 35.4, and particularly of the Gini coefficients

from 0.285 to 0.228, is quite substantial (lines 8, 12, and 16, column 9). The similarity of the order to that of the disparity measures for per person income among households grouped by income per household (in Table 13) is intriguing. One can only say that the comparison of income inequality within the subdivisions of Taiwan when made on the basis of distributions of persons by per person income differs from that on the basis of conventional distributions of households by income per household; and that the two sets of distributions are likely to lead to different interpretations and inferences, not necessarily equally tenable.

Three of the findings for the Philippines in 1971, dealing with income disparities among households by size (i.e. number of persons), are similar to those observed for the other countries (Table 16). First, the largest households show larger incomes, for the country and each subdivision (Manila and suburbs, other urban, and rural). Second, on a per person basis, the larger the household, the lower the income per person. In general, the total disparity contributed by the size of household is greater when observed on a per person basis than among households (see column 9, lines 4 and 7, 11 and 14, 18 and 21, 25 and 28), and this difference was also found for U.S. families, for Israel households, for Taiwan as a whole and for Taipei City. Third, in the comparison on the per person basis (but not the household basis), the highest disparity is observed for Manila and suburbs, with other urban next, and rural showing the lowest (column 9, lines 14, 21, and 28).

Table 16 Income Disparities, Households Classified by Size, Philippines and Subdivisions, 1971

	Classes by Number of Persons								Total
	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	8 & over (8)	
Philippines, Total									
1. Share in income (%)	1.1	4.6	8.8	13.6	13.9	13.2	12.3	32.5	100.0 (23,714)
2. Share in number of households (%)	1.8	6.9	11.6	14.9	14.6	13.5	11.6	25.1	100.0 (6,347)
3. Income relative per household	0.61	0.67	0.76	0.92	0.95	0.98	1.06	1.29	1.00 (3,736)
4. Disparity (lines 1 and 2)	-0.7	-2.3	-2.8	-1.3	-0.7	-0.3	0.7	7.4	16.2 (0.118)
5. Share in number of persons (%)	0.3	2.4	5.9	10.2	12.5	13.8	13.9	41.0	100.0 (37.2)
6. Income relative per person	3.60	1.96	1.48	1.34	1.11	0.95	0.89	0.79	1.00 (639)
7. Disparity (lines 1 and 5)	0.8	2.2	2.9	3.4	1.4	-0.6	-1.6	-8.5	21.4 (0.141)
Manila and Suburbs									
8. Share in income (%)	2.0	4.2	9.4	12.2	14.6	11.1	10.7	35.8	100.0 (4,086)
9. Share in number of households (%)	1.9	5.6	12.0	14.1	15.9	13.8	10.7	26.0	100.0 (523)
10. Income relative per household	1.02	0.74	0.78	0.86	0.93	0.80	1.01	1.38	1.00 (7,785)
11. Disparity (lines 8 and 9)	0.1	-1.4	-2.6	-1.9	-1.3	-2.7	0	9.8	19.8 (0.134)
12. Share in number of persons (%)	0.3	1.7	6.0	9.6	13.3	13.8	12.7	42.6	100.0 (3.13)
13. Income relative per person	6.08	2.21	1.55	1.27	1.10	0.79	0.87	0.84	1.00 (1,307)
14. Disparity (lines 8 and 12)	1.7	2.5	3.4	2.6	1.3	-2.7	-2.0	-6.8	23.0 (0.222)

Table 16--continued

	Classes by Number of Persons (1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	Total (9)
Other Urban									
15. Share in income (%)	0.7	4.2	8.7	14.7	13.4	14.2	13.8	30.3	100.0 (7.136)
16. Share in number of households (%)	1.6	6.2	11.4	15.9	13.4	14.5+	12.3	24.7	100.0 (1,393)
17. Income relative per household	0.49	0.68	0.76	0.92	0.99	0.97	1.12	1.23	1.00 (5.141)
18. Disparity (lines 15 &16)	-0.9	-2.0	-2.7	-1.2	0	-0.3	1.5	5.6	14.2 (0.107)
19. Share in number of persons (%)	0.3	2.1	5.8	10.8	11.4	14.8	14.6	40.2	100.0 (8.21)
20. Income relative per person	2.90	1.99	1.50	1.35	1.17	0.95	0.94	0.75	1.00 (869)
21. Disparity (lines 15 and 19)	0.4	2.1	2.9	3.9	2.0	-0.6	-0.8	-9.9	22.6 (0.153)
Rural									
22. Share in income (%)	1.0	5.0	8.6	13.5	13.9	13.3	12.1	32.6	100.0 (12.433)
23. Share in number of households (%)	1.9	7.3	11.6	14.6	14.9	13.1	11.5	25.1	100.0 (4,434)
24. Income relative per household	0.55	0.68	0.74	0.92	0.94	1.02	1.05+	1.30	100.0 (2,818)
25. Disparity (lines 22 and 23)	-0.9	-2.3	-3.0	-1.1	-1.0	0.2	0.6	7.5	16.6 (0.124)
26. Share in number of persons (%)	0.3	2.5	6.0	10.0	12.8	13.5	13.8	41.1	100.0 (25.6)
27. Income relative per person	3.19	1.99	1.44	1.35	1.09	0.99	0.87	0.79	1.00 (484)
28. Disparity (lines 22 and 26)	0.7	2.5	2.6	3.5	1.1	-0.2	-1.7	-8.5	20.8 (0.139)

Table 16--continued

Notes: The underlying data are from Table 2, 6, 8, 19, and 21 of the source cited for Table 5 above. For details of definitions see notes to Table 5.

The entries in parentheses in column 9, lines 1, 8, 15, and 22 refer to total income (in million pesos); lines 2, 9, 16, and 23, to number of households (in thousands); lines 3, 10, 17, and 24, to average income per household (in pesos); lines 4, 71, 11, 14, 18, 21, 25 and 28 to the Gini coefficients; lines 5, 12, 19, and 26, to number of persons (in million); lines 6, 13, 20, and 27, to average income per person (in pesos); lines 7, 14, 21, and 28, to the Gini coefficients.

The income relatives may not check with the ratios of shares in income to shares in number, because of rounding.

But there are some interesting peculiarities about the distribution of Philippine households by size, particularly compared with Taiwan, the other less developed country in our limited sample. For the Philippines as a whole, the average household comprises 5.85 persons, only about 5 percent greater than the average of 5.58 persons for Taiwan in 1972. But in the Philippines the larger households, with eight or more persons, are over 25 percent of the total and the proportion of persons in these large households is as high as 41 percent (column 8, lines 2 and 5); in Taiwan, the corresponding shares are only 16.4 and 27.4 (see Table 13, column 8, lines 2 and 5). The offsetting differences are in the middle-size households, including from five to seven persons, which accounted in the Philippines for 39.7 percent of households and 40.2 percent of persons, compared with 53.1 and 55.6 percent respectively in Taiwan (Tables 16 and 13, columns 5-7, lines 2 and 5). It would be interesting to explore the sources of these differences, and the associated age composition within the households; but we must limit the discussion here to merely illustrating the possible variety of structure by size even among countries with roughly the same large average household size.

The second interesting and different characteristic is that in the Philippines the average size of household is about the same in the metropolis, other urban areas, and the rural areas--the arithmetic means being 5.98, 5.88, and 5.83 persons, in the order indicated. To be sure, urban-rural fertility differentials have been found to be rather limited in many less developed regions and not always in favor of the larger rural (see e.g. my paper, "Rural-Urban Differentials in Fertility: an International Comparision," Proceedings of the American Philosophical Society,

vol. 118, no. 1, February 1974, pp. 1-29). But this similarity in size does represent a contrast with Taiwan, and raises some questions concerning the composition particularly of the metropolitan, and perhaps also of the other urban population, with respect to both age and the weight of in-migrant relative to the older settler families.

Table 17, like Table 16, confirms several findings already commented upon for the other three countries. In the Philippines also the proportion of larger families increases as we move from the low to the high income per household classes, and reflected in the rise in persons per household (lines 5, 10, 15, and 20). It follows that the disparities among classes of households, when computed on a per person basis, will be somewhat narrower than those on the per household basis. Thus the TDMs and Gini coefficients in column 8, lines 5, 10, 15, and 20 are all below the corresponding entries in column 8, lines 4, 9, 14, and 19. And like the disparity for Taiwan's subdivision of farmer families, disparity here was reduced relatively sizeably for the Philippine households, in all three subdivisions.

Still, the TDMs and Gini coefficients remain fairly large for the Philippines, even when we shift from income disparities among households (classified by income per household) to disparities among persons (similarly classified). If we had shifted the whole distribution to a per person basis (as was done for the other three countries), total disparity in the distribution of income among persons, by per person income per household, would still have been quite high. For the country as a whole, the TDM would have to be significantly above 61.8, and the Gini coefficient

Table 17 Income Disparities, Households Classified by Income per Household, Philippines and Subdivisions, 1971

	Classes by Income per household (000s of Pesos)							Total
	Below 1.0 (1)	1.0-1.9 (2)	2.0 2.9 (3)	3.0 4.9 (4)	5.0 7.9 (5)	8.0-14.9 (6)	15.0& over (7)	(8)
Philippines, Total								
1. Share in income (%)	2.9	9.6	11.8	20.4	19.1	20.3	15.9	100.0 (23,714)
2. Share in number of households (%)	17.3	23.9	17.7	20.0	11.4	7.3	2.4	100.0 (6,345)
3. Income relative per household	0.17	0.40	0.67	1.02	1.68	2.78	6.62	1.00 (3,736)
4. Disparity in shares	-14.4	-14.3	-5.9	0.4	7.7	13.0	13.5	69.2 (0.479)
5. Persons per household	4.84	5.45	5.80	6.2	6.85	6.75	6.92	5.85+ (61.8; 0.430)
Manila and Suburbs								
6. Share in income (%)	0.2	1.2	5.0	13.0	17.0	29.7	33.9	100.0 (4,086)
7. Share in number of households	1.1	5.7	15.6	26.2	20.9	21.3	9.2	100.0 (523)
8. Income relative per household	0.18	0.21	0.32	0.50	0.81	1.39	3.69	1.00 (7,812)
9. Disparity in shares	-0.9	-4.5	-10.6	-13.2	-3.9	8.4	24.7	66.2 (0.431)
10. Persons per household	3.17	4.67	4.98	5.85	6.41	6.65	6.65	5.98 (59.0; 0.383)
Other Urban								
11. Share in income	0.8	4.5	7.8	18.2	21.8	27.1	18.8	100.0 (7.136)
12. Share in number of households	7.0	15.2	18.0	24.4	18.0	13.2	4.2	100.0 (1,388)
13. Income relative per household	0.11	0.30	0.49	0.75	1.21	2.05	4.48	1.00 (5,141)
14. Disparity in shares	-6.2	-10.7	-9.2	-6.2	3.8	13.9	14.6	64.6 (0.431)
15. Persons per household	4.67	5.22	5.56	5.81	6.66	6.41	7.10	5.88 (55.6; 0.386)

Table 17--continued

	Classes by Income per HH (000s of pesos)							Total
	Below 1.0 (1)	1.0-1.9 (2)	2.0-2.9 (3)	3.0-4.9 (4)	5.0-7.9 (5)	8.0-14.9 (6)	15.0 & over (7)	(8)
Rural								
16. Share in income (%)	5.0	15.1	15.7	24.2	17.9	13.5	8.6	100.0 (12,493)
17. Share in number of households	22.4	28.9	18.0	17.9	8.1	3.7	1.0	100.0 (4,434)
18. Income relative per households	0.22	0.52	0.87	1.35	2.21	3.65	8.6	1.00 (2,818)
19. Disparity in shares	-17.4	-13.8	-2.3	6.3	9.8	9.8	7.6	67.0 (0.451)
20. Persons per household	4.86	5.51	5.96	6.47	7.11	7.21	7.02	5.83 (57.4; 0.3
Nonfarm Households								
21. Share in income (%)	1.4	6.2	10.0	19.8	20.5	24.6	17.5	100.0 (16,004)
22. Share in number of households (%)	10.7	18.5	18.2	23.6	14.9	10.6	3.5	100.0 (3,512)
23. Income relative per household	0.13	0.34	0.55-	0.84	1.38	2.32	5.0	1.00 (4,557)
24. Disparity in shares	-9.3	-12.3	-8.2	-3.8	5.6	14.0	14.0	67.2 (0.451)
Farm Households								
25. Share in income (%)	6.0	16.7	15.4	21.8	15.7	11.7	12.7	100.0 (7,710)
26. Share in number of households (%)	25.4	30.8	17.1	15.5	6.9	3.2	1.1	100.0 (2,834)
27. Income relative per household	0.24	0.54	0.90	1.41	2.28	3.66	11.5	1.00 (2,720)
28. Disparity in shares	-19.4	-14.1	-1.7	6.3	8.8	8.5	11.6	70.4 (0.474)

Table 17--continued

Notes: For sources and other details see notes to Table 5. A family was placed in the farm household group if a member operated a farm within the past 12 months, or, regardless of the area of the farm, the family raised a specified number of livestock, or chicken and ducks, at the time of the survey (see source, p. xi). All other households were classified as nonfarm.

Entries in parentheses in column 8, lines 1, 6, 11, 16, 21, and 25, were for total income (in million of pesos); in lines 2, 7, 12, 17, 22, and 26, for number of households (in thousands); in lines 3, 8, 13, 18, 23, and 27 for income per household (in pesos); in lines 4, 9, 14, 19, 23, and 28, for Gini coefficients.

Entries in parentheses in column 8, lines 5, 10, 15, and 20, are the TDMs and Gini coefficients for the relevant distributions of persons in households, classified by per person income of household. They can, therefore, be compared with the TDMs and Gini coefficients in lines 4, 9, 14, and 19.

significantly above 0.430--wider disparity than in any of the three countries covered above. The rather distinctively wide inequality in the conventional size-distribution of incomes among households in the Philippines would probably remain after conversion to a per person basis. The slight additional knowledge promised by the recalculation did not warrant the effort.

Lines 21-28 are based on a classification of households into nonfarm and farm; but for these the source does not give associated data on the distribution of households by size. It will be noted that farmer households--even if all are considered rural--are only about two-thirds of the total of rural households. For farm households as defined, total disparity, with a TDM of 70.4 and a Gini coefficient of 0.474, is perceptibly wider than that for nonfarm households or, more appropriately, than that for rural households (with a TDM of 67.0 and a Gini coefficient of 0.451). This finding parallels a similar one for Taiwan, where the disparity in the conventional size-distribution of income among farmer households was somewhat wider than among the nonfarmer population, outside of Taipei (see Table 14, col. 8, lines 14 and 21). In the Philippines also a shift to the properly calculated per person basis would probably bring the total disparity in the distribution for the farm population below those for total and nonfarm households.

7. Cross-Section Disparities and Life-Cycle Income

Before we conclude our discussion, it may be useful, even at the danger of repetition, to elaborate on a major implication of the analysis so far, viz., that cross-section differentials in income per household (or per person) revealed by classes by age of head, or by size of household, or by any other demographic variable that is part of the life cycle of formation, growth, and dissolution of households, reveal nothing about disparities in lifetime incomes. Hence, such cross-section disparities in income per household (or per person), of varying amplitude, are compatible with equality of lifetime income, either per household or per person. In this section, we attempt to demonstrate this compatibility between cross-section income differentials among age-of-head or size-of-household groups and the assumption of equal lifetime incomes among the units involved. The illustrative models are based on parameters that are realistic in the sense that they are similar to some observed in the preceding sections.

We begin with a group of models for the age-of-head variable (Table 18). The basic distinction introduced here and in the next group of models is between the cohort--a group of households (ranging from one to whatever large number one wishes to use) who begin their life cycle at a given time--and the current population, which is a congeries of cohorts that began their life cycle at different times in the past, and have not yet completed the cycle and dissolved (usually by death). We then assume that in the cohort all households go through the same life cycle: all with a given age of head are assigned the same income per year, and remain for the same interval within the given age-of-head class. What we vary in the

illustrative calculations in Table 18 is the pattern of the life cycle of income within the total life span (the latter held the same for all income patterns)--with Patterns I and II as a result. The total life-cycle income per household is gross, in that no time discount is introduced, and the same, as is the average annual income (the discount factor could be taken into account by varying the annual income levels, but the major result would not change). In other words, the lifetime incomes of the different cohorts are equal, regardless of the different life-cycle patterns. The inequality emerges when we combine several cohorts, at the different stages of their life cycle, into current population. To do this we must assign weights to the different phases within the cohort life cycle pattern; and two patterns of such weights, i.e., of the distribution of current population among the successive cohorts, are shown in Table 18--patterns 1 and 2 which are similar to those in the developed and less developed countries respectively. The combination of two patterns of life-cycle income for cohorts, and two patterns of the distribution of current population among cohorts at different phases can yield four combined patterns; but we use only two, I-1 and II-2, to represent developed and less developed countries. These two combinations are then converted into two distributions by age of head (Panel B).

The results in Panel B can be easily summarized. First, while the cohort life-cycle incomes in Panel A are equal, the different weighting of the phases in the distributions in columns 7 and 8 of Panel A, introduces some inequality into the average household income of the two distributions, a difference between 104.6 for Pattern I-1 and 106.3 for Pattern

Table 18

Age-of-Head Variable, Illustrative Models

A. Patterns of Life-Cycle Income within Cohorts, and Patterns Of Distribution of Current Population among Cohorts

Age of Head	Years in Age Class	Life Cycle Income Patterns I: Income per year	I: Total income	II: Income per year	II: Total income	Patterns of distribution among cohorts, % shares of households: 1	2
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1. Below 25	7	60	420	70	490	10	5
2. 25-34	10	90	900	80	800	17	20
3. 35-44	10	120	1,200	110	1,100	21	30
4. 45-54	10	135	1,350	122	1,220	19	25
5. 55-64	10	124	1,240	120	1,200	18	13
6. 65- & over	7	70	490	110	770	15	7
7. Total or average	54	103.3	5,580	103.3	5,580	100	100

B. Income Distribution, Households Classified by Age of Head (Based on Panel A)

	Classes by Age of Head: Below 25 (1)	25-34 (2)	35-44 (3)	45-54 (4)	55-64 (5)	65 & over (6)	Total (7)
Pattern I-1							
8. Total income	600	1,530	2,520	2,565	2,198	1,050	10,463
9. Share in income (%)	5.8	14.6	24.1	24.5+	21.0	10.0	100.0
10. Share in number of households (%)	10.0	17.0	21.0	19.0	18.0	15.0	100.0
11. Income relative per household	0.58	0.85	1.15	1.29	1.19	0.67	1.00
12. Disparity in shares	-4.2	-2.4	3.1	5.5	3.0	-5.0	23.2 (0.138)

Table 18--continued

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Pattern II-2							
13. Total income	350	1,600	3,300	3,050	1,560	770	10,630
14. Share in income (%)	3.3	15.0	31.0	28.7	14.7	7.3	100.0
15. Share in number of households (%)	5.0	20.0	30.0	25.0	13.0	7.0	100.0
16. Income relative per household(%)	0.66	0.75	1.03	1.15	1.13	10.4	1.00
17. Disparity in shares	-1.7	-5.0	1.0	3.7	1.7	0.3	13.4 (0.046)

Notes: For derivation of Panel A see discussion in the text.

Total income in lines 8 and 13 is the product of the percentage shares in number of households (in columns 7 and 8 of Panel A respectively) by the income per year in columns 3 and 5 of the same panel; and then summating. The percentages in lines 9 and 14 are derived from lines 8 and 13.

Lines 10 and 15 are the distribution patterns in columns 7 and 8 of Panel A.

The income relatives in lines 11 and 16 are ratios of the percentage shares in income and in number. They will not check with income relatives derivable from columns 3 and 5 of Panel A, because of rounding.

The entries in parentheses in lines 12 and 17, column 7, are the Gini coefficients.

II-2. But, second and far more important, the income disparities in the cross-section distributions for current population are substantial: the TDMs are 23.2 for Pattern I-1 and 13.4 for Pattern II-2, with Gini coefficients 0.138 and 0.046. Such income disparities among classes by age of head must introduce inequalities into the customary size distribution of income among households, even though, by assumption, the life cycle income is the same for all households, at about 103 per year over the 54 year life cycle assigned to a household.

Table 19 presents a similar set of models reflecting the size-of-household variable. We tried to keep the life cycle of the household cohort (including one-person households) at 54 years, but had to make a minor variation to allow different pre-marriage experience between males and females in the developed and less developed countries. For the developed countries we assumed seven years of work and of a separate household for males and three years of work and of a separate household for females--both before marriage. For the less developed countries we allowed five years of work, and for males only. The lifetime income of a household was, however, kept the same for Patterns A and B, assumed to represent developed and less developed countries. In the corresponding patterns of distribution of current population among cohorts of varying age, or, which is the same, among successive phases of the cohort life cycle (columns 8 and 9 of Panel I), the proportion of larger households in Pattern b is much greater. The average number of persons per household is then 3.24 in Pattern a and 5.27 in Pattern b, a difference characteristic of that between the average household in developed and

Table 19 Size-of-Household Variable, Illustrative Models

I. Life Cycle Income Patterns within Cohort, and Patterns of Distribution of Current Population among Cohorts

Number of persons in household (chronological order) (1)	Life Cycle Income Patterns A: Years in interval (2)	A: Income per year (3)	A: Total income (4)	B: Years in interval (5)	B: Income per year (6)	B: Total income (7)	Patterns of distribution among cohort % of Households: a (8)	b (9)
1. 1 person*	7*	37*	370*	5*	40*	200*	10	5
2. 2 persons	3	80	240	3	60	180	13	9
3. 3 persons	3	110	330	3	70	210	11	10
4. 4 persons	4	150	600	3	80	240	10	12
5. 5 persons	4	135	540	3	100	300	6	12
6. 6 & over**	11	110	1,210	17	125	2,125	10	37
7. 5 persons	4	125	500	10	120	1,200	6	10
8. 4 persons	4	135	540	10	112.5	1,125	8	5
9. 3 persons	4	110	440	0	0	0	9	0
10. 2 persons	5	100	500	0	0	0	9	0
11. 1 person	5	62	310	0	0	0	8	0
12. Total	54		5,580	54		5,580	100	100

II. Income Distribution, Households Classified by Size (Based on Panel I)

	Classes of Households by Number of Persons: 1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 & over (6)	Total (7)
Pattern A-a							
13. Total income	866	1,940	2,200	2,580	1,560	1,210	10,356
14. Share in income (%)	8.4	18.7	21.2	24.9	15.1	11.7	100.0
15. Share in number of households (%)	18.0	22.0	20.0	18.0	12.0	10.0	100.0
16. Income relative per household	0.47	0.85	1.06	1.38	1.25	1.17	1.00
17. Disparity (lines 14 & 15)	-9.6	-3.3	1.2	6.9	3.1	1.7	25.8 (0.174)

Table 19--continued

	Classes of Households by Number of Persons						Total
	(1)	(2)	(3)	(4)	(5)	6 & over (6)	(7)
18. Share in number of persons (%)	5.6	13.6	18.5+	22.2	18.5+	21.6	100.0 (3.24)
19. Income relative per person	1.50	1.38	1.14	1.12	0.82	0.54	1.00
20. Disparity (lines 14 and 18)	2.8	5.1	2.7	2.7	-3.4	-9.9	26.6 (0.105)
Pattern B-b							
21. Total income	200	540	700	1,523	2,400	4,625	9,988
22. Share in income (%)	2.0	5.4	7.0	15.2	24.1	46.3	100.0
23. Share in number of households (%)	5.0	9.0	10.0	17.0	22.0	37.0	100.0
24. Income relative per household	0.40	0.60	0.70	0.90	1.10	1.25	1.00
25. Disparity (lines 21 and 22)	-3.0	-3.6	-3.0	-1.8	2.1	9.3	22.8 (0.142)
26. Share in number of persons (%)	0.9	3.4	5.7	12.9	20.9	56.2	100.0
27. Income relative per person	2.22	1.59	1.23	1.18	1.15	0.66	1.00
28. Disparity (lines 22 and 26)	1.1	2.0	1.3	2.3	3.2	-9.9	19.8 (0.110)

*It was assumed that two single individuals each formed a household, and then formed one unit of two persons (in line 2). For Pattern A, the assumption was that one of the individuals received, for 7 years, an income of 40 units per year; the other (the woman) received, for 3 years, an income of 30 units per year, yielding the total of 370 units in line 1, col. 4, and an average of 37 in col. 2. For Pattern II, the assumption was the only one individual (presumably the man) worked for 5 years before marriage.

**Total number of persons per household in the group of six persons and over was assumed to average seven persons in Pattern a and eight in Pattern b.

Table 19--continued

Notes: For derivation of Panel I see the discussion in the text. Total income in lines 13 and 21 is the product of the entries in column 8 or 9 of Panel I respectively and the income per year in column 3 or 6--and then summating.

Lines 15 and 21 are the percentage shares taken directly from Panel I, columns 8 and 9.

The entries in parentheses in column 7, lines 17, 20, 25, and 28, are the Gini coefficients.

The entries in parentheses in column 7, lines 18 and 26 are the average number of persons per household, in Patterns A-a and B-b.

Income relatives in lines 16,19,24, and 27 were obtained by dividing the percentage shares in income by the appropriate percentage shares in numbers.

less developed countries in recent years. With lifetime income per household in both patterns held the same, the result is an appreciably lower lifetime income per person in Pattern B-b. This could be remedied by raising the lifetime income per household for Pattern B-b, and introducing inequality in the income per household between the two patterns, or implicit sets of countries. But it is impossible, under the assumed conditions, to have equality of lifetime incomes on both per household and per person basis.

The two sets of distributions in Panel II follow automatically. Assuming that the parameters used in Panel I are realistic, total disparity introduced into the distribution of income among households for the developed countries is substantial, and somewhat wider than that for the LDCs (compare column 7, lines 17 and 25). With a shift to the per person basis (which here fully reflects the distribution among persons, since no other variance is included), the greater disparities introduced by the size-of-household variable in the DCs than in the LDCs are more striking (compare column 7, lines 20 and 28). Thus, in comparing conventional distributions of income among households by income per household with distributions among persons, one would have to allow for the greater effect on the former of the size-of-household disparities, even if the lifetime income per household or per person is assumed to be the same for the two groups of countries.

The empirical basis for the models presented in Tables 18 and 19 is quite slender. Data are almost completely lacking at present for comparable joint models. Such models would require, in addition to

a series on the average size of household to be associated with classes by age of head, a cross-classification of the two variables (and their incomes) at least in the detail used for the United States in Table 8 above. No such data are at hand for another country.

But we attempted to experiment by combining the distinctive patterns of the two separate demographic components. The results may suggest the effect of either age of head, or size of household, in a single country or year, that is produced by a mixture of the two patterns within each set. Such a mixture is realistic in the sense that for a given country, differences in income by classes of households grouped by age of head (or size of household) do not reflect the pure effect of a single pattern (say the developed, i.e., I-1 or A-a) but a mixture of the two and under different conditions--with different weights in terms of number of households or persons, or in terms of average income per household or per person.

To avoid elaborate additional discussion, we limit Table 20 to a summary of effects of mixtures in which one set of weights, in terms of number of households, is kept the same for the I-1 and II-2 patterns within the age-of-head variable, and for the A-a and B-b pattern within the size-of-household variable. But we vary the comparative average income per household for the two patterns within each of the two variables: in Assumption i leaving these average incomes per household at their rough equality (as indicated in Tables 18 and 19); in Assumption ii using a more realistic approach by setting average household income in the developed patterns (i.e., I-1 and A-a) at twice that in the less developed patterns (II-2 and B-b); and in Assumption iii raising the household income average for the less developed pattern to 1.6 times that of the developed pattern, and thus implying equality between the two in average income per person.

Table 20 Effects of Combining Patterns within a Single Country or Region, on Different Assumptions Concerning Relative Magnitudes of Average (Lifetime) Income per Household

I. Age-of-Head Patterns (I-1 and II-2)

	Classes by Age of Head						Total
	Below 25 (1)	25-34 (2)	35-44 (3)	45-54 (4)	55-64 (5)	65 & over (6)	(7)
Assumption i							
1. Share in income (%)	4.5	14.9	27.6	26.6	17.8	8.6	100.0
2. Share in number of households (%)	7.5	18.5	25.5	22.0	15.5	11.0	100.0
3. Income relative per household	0.60	0.80	1.08	1.22	1.15	0.78	1.00
4. Disparity (lines 1 and 2)	-3.0	-3.6	2.1	4.6	2.3	-2.4	18.0 (0.108)
Assumption ii							
5. Share in income (%)	4.9	14.8	26.4	25.9	18.9	9.1	100.0
6. Income relative per household	0.65	0.80	1.03	1.18	1.22	0.83	1.00
7. Disparity (lines 5 and 2)	-2.6	-3.7	0.9	3.9	3.4	-1.9	16.4 (0.102)
Assumption iii							
8. Share in income (%)	4.2	14.9	28.4	27.1	17.1	8.3	100.0
9. Income relative per household	0.56	0.80	1.11	1.30	1.10	0.75	1.00
10. Disparity (lines 8 and 2)	-3.3	-3.6	2.9	5.1	1.6	-2.7	19.2 (0.115)

Table 20--continued

II. Age-of-Household Patterns (A-a and B-b)

	Size (Number of Persons) Classes						Total
	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 & over (6)	(7)
Assumption i							
11. Share in income (%)	5.2	12.2	14.3	20.2	19.4	28.7	100.0
12. Share in number of households (%)	11.5	15.5	15.0	17.5	17.0	23.5	100.0
13. Income relative per household	0.45	0.79	0.95	1.15	1.14	1.22	1.00
14. Disparity (lines 11 and 12)	-6.3	-3.3	-0.7	2.7	2.4	5.2	20.6 (0.127)
15. Share in number of persons (%)	2.7	7.3	10.6	16.4	20.0	43.0	100.0
16. Income relative per person	1.93	1.67	1.35	1.23	0.97	0.68	1.00
17. Disparity (lines 11 and 15)	2.5	4.9	3.7	3.8	-0.6	-14.3	29.8 (0.189)
Assumption ii							
18. Share in income (%)	6.3	14.4	16.6	21.8	18.0	22.9	100.0
19. Income relative per household	0.55	0.93	1.11	1.25	1.06	0.97	1.00
20. Disparity (lines 18 and 12)	-5.2	-1.1	1.6	4.3	1.0	-0.6	13.8 (0.099)
21. Income relative per person	2.33	1.97	1.56	1.33	0.90	0.53	1.00
22. Disparity (lines 18 and 15)	3.6	7.1	6.0	5.4	-2.0	-20.1	44.2 (0.284)
Assumption iii							
23. Share in income (%)	4.5	10.6	12.6	19.1	20.5	32.7	100.0
24. Income relative per household	0.39	0.68	0.84	1.09	1.21	1.39	1.00
25. Disparity (lines 23 and 12)	-7.0	-4.9	-2.4	1.6	3.5	9.2	28.6 (0.184)
26. Income relative per person	1.67	1.45	1.19	1.16	1.02	0.76	1.00
27. Disparity (lines 23 and 15)	1.8	3.3	2.0	2.7	0.5	-10.3	20.6 (0.129)

Table 20--continued

Notes All calculations are based on Tables 18 and 19, supplemented by the three assumptions described below.

In all three the number of households is the same in each pattern in the two pairs (I-1 and II-2, and A-a, and B-b), so that the households are weighted equally. This implicitly assumes that for persons (in the size-of-household variable) the disparity in number of persons between A-a and B-b remains the same, that in the latter being 1.6 times the former.

In assumption i we retain the equality of income per household, or, more precisely, the near-equality observed in Tables 18 and 19 (when the averages differ only by a few percentage points, due to different weighting of similar lifetime incomes). In assumption ii income per household for the developed type patterns (i.e. I-1 and A-a) is twice that for the less developed patterns (i.e., II-2 and B-b). In assumption iii income per household in the less developed patterns (II-2 and B-b) is 1.6 times the income per household for the developed patterns (I-1 and A-a). It follows that in Assumption i, the implicit ratio of per person incomes between the developed and less developed patterns is of 1 to 0.625; in assumption ii of 2 to 0.625, or 1 to 0.3125: in assumption ii of 1 to 1.

In combining patterns with equal frequency weights we used the total income amounts (in Tables 18 and 19), the percentage shares in households, and the absolute numbers for the number of persons.

Because of the necessarily rough assumptions, the detailed results of Table 20 are not discussed here. The major finding is that the assumed average incomes per household for the two patterns within each demographic component, affect substantially the aggregate disparities. Thus, in Panel I, the TDMs associated with the age-of-head component vary from 16.4 to 19.2, and the corresponding Gini coefficients, from 0.102 to 0.115 (column 7, lines 4, 7, and 10). More strikingly, the TDMs associated with the classification of households by size, vary from 13.8 to 28.6 and the corresponding Gini coefficients from 0.099 to 0.184; while the TDMs associated with income disparities per person among classes of households by size vary from 21.2 to 44.2, and the corresponding Gini coefficients, from 0.129 to 0.284 (column 7, lines 17, 22, and 23). In short, the observable income disparities revealed by classes of households by age of head or by size, reflect not only the "pure" effects of the two components taken separately, as they were in Tables 18 and 19, but also of the different weights in number and in income per household or per person, in the different combinations of the distinctive patterns. It follows that adequate study of the demographic components requires not only identification of the distinctive patterns of movement, within the life cycles of a group of households (within a country), of their size and income; but also a view of the countrywide size-distribution of income as affected by a mixture of such different patterns, with changing weights in number and in differentials in income (per household or per person) over time, and changing differences in space.

8. Concluding Comments

The preceding discussion was clearly in the nature of preliminary exploration. It barely touched upon a wide and complex field of interrelations between the demographic components and the size-distribution of income. But three conclusions are apparent, and can be briefly stated.

First, in view of the wide and changing differences among households by size--implying differences in number of producers and consumers --the conventional size-distribution of income among households by income per household must be converted to a per producer, a per consumer, or, at least, a per person, basis if it is to be meaningful. Because of the close negative association usually observed between income per person (or per producer or consumer unit) and the size of the household, the conversion when adequately carried through results in a marked shift of identity of households at the lower and upper income levels of the distribution. The significant changes over time and differences in space in the size differentials within the universe of households affect seriously the comparability of the conventional size distribution of income among households. And for reasons indicated in the discussion, the use of individuals as recipient units is no answer, not only because they also reflect diversity within the life cycle but because they are integral parts of households and for many analytical and important purposes can only be treated as such.

Second, size, age of head, and other characteristics of the household relevant to its income go through phases of the life cycle of a household; and their changes through these phases, and the corresponding changes in income, are reflected as differences in the cross-section size-distribution

of income. Yet these changes and differences are compatible with complete equality of lifetime incomes (or with differences in the latter that are not related to those originating in the phases of the life cycle). Hence, the phases of the life cycle of a household introduce variance in the conventional size-distribution of income that has little to do with differences in long-term, lifetime incomes. It is important to distinguish the effects of these demographic components, and "adjust" for them--to reveal more clearly the economic and social differentials or changes in lifetime incomes.

Third, an adequate analysis of the demographic components in the size-distribution of income would have to cover a large sample of countries and periods--for the patterns of the underlying demographic processes change over time and differ among regions. An extensive literature is at hand on the formation and life cycles of families; and there is some even on the effects of these life cycles on consumption and saving propensities. (A useful summary appears in the United Nations publication, The Determinants and Consequences of Population Trends, Vol. I, New York, 1973, Chapter X on Families and Households, pp. 335-364; and Chapter XIII on Demographic Aspects of Savings, Investment, Employment and Productivity, pp. 434-504. Volume II, containing a detailed bibliography, is to be published in 1975.) But it must be supplemented by analysis of data directly relevant to income differentials associated with size and composition of families through the phases of their life cycle, in different countries and in different periods. Some time will pass before we attain enough knowledge of the diversity of the structures of the demographic components in their effect on income

levels to derive general findings.

Meanwhile, it should be helpful to adjust the conventional size-distribution of income among households to isolate the effect of age of head, of size of household, or of other relevant demographic components. The decision on type of adjustment would involve a variety of experimental measurements, and cannot be pursued here. Should one "normalize" the variance in the usual size-distribution of income, and then attempt to separate the variance assignable to age of head, size of family, and other demographic components? Should the size distributions be adjusted by standardization, i.e., by conversion to some standard age of head and size of family, or other demographic characteristic pattern? These questions could be properly handled by specifying the analytical purpose, and working with a variety of empirical data. Likewise, what are the proper adjustments to reduce the family to an equivalent consumer or producer basis, and what would the effects be on the size distribution on the basis of income per producing or consuming unit? Only by dint of experimentation can we hope to achieve some further knowledge of the relevant aspects of the internal structure of families with which are not too well acquainted in the developed countries, let alone in the less developed. Thus even for the relatively limited problems noted here--which do not touch upon definition of income or the differences in purchasing power of nominal income among the various economic and social groups within the population--we can only raise and illustrate what seem to be the relevant questions. We are not able to provide tested answers to these questions in empirical analysis; or point to a sufficient variety of findings to support some reasonable expectations of these answers.

While further study of the bearing of demographic components on distribution of income, and tentative adjustments in the available conventional size-distributions of income among households are both useful and could yield new insights in the longer run, an alternative, not necessarily exclusive, should be mentioned. That alternative is to emphasize the distribution of income among distinct socio-economic groups of families or households within the population, and not insist on observing the intra-group variance revealed by the distribution among families or households. Assume that we can define, and distinguish in empirical data, those socio-economic groups that play different parts in economic growth and are likely to be affected differently by different patterns and rates of economic development. Such groups would be, for example, landless agricultural workers, small farmers (by scale of land used), middle-size farmers, large farmers, handicraft manufacturing producers, blue collar employees of factories or of modern utilities, small scale shopkeepers, larger merchants, professional classes, etc. If we could identify the family groups involved by attachment of the head to one of these socio-economic classes, we would have analytically meaningful groups, with data, perhaps, on the average size of families. True, we would lose detail on intra-group variance revealed by the typical size-distribution among families, where the main item of information is the annual income of a family and little more except what can be derived from averages for the size classes distinguished. To be sure, such broad socio-economic groups--rural and urban, nonfarm and farm--are distinguished in some size-distributions now available and used above; and these distributions often contain the classification of households by

occupation and industry attachment of head. But I would urge that emphasis be placed on securing more regular information on the changing size of incomes of these socio-economic groups, and on deriving acceptable distributions of income (as well as of employment and related variables) among these groups, without committing too much effort on information that would permit construction of adequate size distributions of income among households.

This emphasis on group averages and magnitudes would seem to have several advantages, even if we lose the variance among the households within the group. The averaging would remove much of the accidental, one-year effect on the income totals. The differences in the demographic components would probably much less marked and more easily recognizable if significant, among these groups than for individual households. The distribution of families by age of head would differ less between one socio-economic group and another than say among individual households grouped by size of income per household; and the same would be true of the average size of household. And such inter-group differences of demographic characteristics could be more easily approximated and understood. More important, these socio-economic groups could be more easily connected to the divisions within the national economic accounts, whether they refer to the production sectors, or to type of income (reflecting status in the labor force), or even region. This connection cannot be made between national economic accounts and the size-distribution of income--however useful the juxtaposition of the aggregate totals from both for rough checking purposes. It is this distribution of income and product among labor force classified by attachment to the various production sectors, which, on the income side, relied on national economic accounts, that I have found useful on several occasions in my work on economic growth, its antecedent and consequences.

If such a classification into socio-economic groups could be formulated, and made comparable for countries at different levels of economic development and with different economic structures, the effort to gather information in the censuses and in the field could yield the relevant data, which could then be supplemented occasionally by a detailed size distribution. At least it might influence the way of grouping households or families in the field studies on family income and expenditures, as well as affect the groupings of data on employment and product as they enter the national economic accounts. To be sure, we would confront here the inadequacy of the standardized international set of economic accounts in its classification of production sectors and definitions of several income items and of labor force. But this confrontation is long overdue; and the delay seems to me to be responsible for the many difficulties in international comparisons of economic accounts, and particularly, of measures of economic growth today.

These comments on the possible approach to distribution of income among socio-economic groups, have obviously not been tested by empirical data. They are offered here for discussion that should examine anew our offorts to establish the major connections between economic growth, and the income and employment structures of the population.

Appendix. Conversion to Household Income per Consumer Unit

In Sections 5 and 6 on the size of household, we observed that income per household increases with rise in the size of household as measured by the number of persons; but that household income per person decreases, generally and substantially, as we move from the smaller to the larger households. The question is whether this negative correlation, generally observed between size of household and per person income, would still remain if we were to allow for the fact that larger households contain more children, who can each be viewed as less than a full consumer unit (we emphasize children, because they are by far the largest group within households that may be viewed as less than standard consumer units). Rather than deal with this question in the text, and add further detail to an already encumbered discussion, we consider it briefly in this Appendix.

The shift from income per person to income per consumer unit, illustrated in Table 20, is based on two rough assumptions. The first is that in any household of fewer than two members, there are no children; and that in households of three members each or larger there are only two adults in each, and the other members are related children under 18 (the age limit that is usually employed in the relevant data). The second assumption assigns a weight of 0.5 of full or standard consumer unit to children under 18; and a weight of 1.0 to each adult member of the household. Using these assumptions, we calculated for each size-of-household (by number of persons) class the number of consumer units, obtained percentage shares in the total number of consumer units, and related them to percentage shares in total income (already available in the tables in Sections 5 and 6), thus deriving income relatives per consumer unit--for the size-of-household classes ranging from the smallest to the largest shown.

Table A-1

Income Relatives Per Person and Per Consumer Unit, Households by Size, Countries Covered in the Discussion

	Households by Size (Number of Persons)							
	1	2	3	4	5	6*	7**	8 and over
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
United States, 1972 (Table 9)								
Families								
1. Per person	0	1.41	1.17	0.99	0.81	0.65	0.49	na
2. Per consumer unit	0	1.15	1.11	1.04	0.91	0.74	0.61	na
Families and Unrelated Individuals								
3. Per person	1.37	1.41	1.13	0.96	0.78	0.63	0.47	na
4. Per consumer unit	1.11	1.14	1.10	1.01	0.80	0.77	0.60	na
Israel, Urban Households, 1968/69 (Table 11)								
5. Per person	1.60	1.57	1.37	1.19	0.81	0.47	na	na
6. Per consumer unit	1.20	1.18	1.24	1.19	0.87	0.56	na	na
Taiwan, 1972 (Table 13)								
7. Per person	2.33	1.87	1.54	1.26	1.09	0.94	0.87	0.78
8. Per consumer unit	1.56	1.27	1.26	1.14	1.07	0.96	0.91	0.87
Taipei City								
9. Per person	2.22	1.96	1.66	1.27	1.04	0.92	0.81	0.76
10. Per consumer unit	1.50	1.32	1.17	1.15	1.03	0.95	0.87	0.85

Table A-1--continued

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Taiwan Province								
Nonfarmer Households								
11. Per person	2.18	1.72	1.49	1.16	1.05	0.93	0.86	0.80
12. Per consumer unit	1.54	1.16	1.23	1.06	1.03	0.95	0.97	0.90
Taiwan Province, Farmer Households								
13. Per person	2.24	1.71	1.47	1.22	1.15	0.97	0.92	0.93
14. Per consumer unit	1.51	1.14	1.13	1.07	1.01	0.96	0.95	1.02
Philippines, 1971 (Table 16)								
Total								
15. Per person	3.60	1.96	1.48	1.34	1.11	0.95	0.85	0.79
16. Per consumer unit	2.20	1.31	1.17	1.18	1.06	0.95	0.92	0.89
Manila and Suburbs								
17. Per person	6.08	2.21	1.55	1.27	1.10	0.79	0.87	0.84
18. Per consumer unit	4.00	1.50	1.24	1.15	1.04	0.80	0.88	0.93
Other Urban								
19. Per person	2.90	1.99	1.50	1.35	1.17	0.95	0.94	0.75
20. Per consumer unit	1.75	1.35	1.16	1.19	1.10	0.95	0.96	0.86
Rural								
21. Per person	3.19	1.99	1.44	1.35	1.09	0.99	0.87	0.79
22. Per consumer unit	2.00	1.32	1.16	1.21	1.04	0.98	0.91	0.89

na--not available

*-six and over for Israel, lines 5 and 6

**-seven and over for the United States, lines 1-4

Table A-1--continued

Notes

Lines 1,3,5,7,9,11, 13, 15, 17, 19, and 21-- from the text tables, number given in the stub.

The derivation of the per consumer unit relatives is described in the text of the Appendix.

While the assumptions are crude, they are not unrealistic; and if they are, it is in the direction of making the correction too great and underestimating the number of consumer units. To begin with the first assumption, one may admit that it overstates the number of children in the households. Thus, for the United States families in 1972, Table 21, pp. 59ff of the source used in the relevant text tables, indicates a proportion to all persons of related children under 18 of 35.7 percent, whereas our assumption yields a comparable proportion of 42.5 percent. Likewise, for the Philippines in 1971, Table 50, p. 138 of the source used for relevant tables in the text, shows an average of 3.1 children (related, under 18) per household, or 53.0 percent of the average of all persons per household (5.85); whereas our assumption yields a comparable proportion of 66.2 percent. But this overstatement, about a fifth, did not warrant refinement, particularly since there may have been some groups among adults with less than standard consumer unit equivalence (e.g., the retired, older persons).

The assignment of a weight of 0.5 to children under 18 would have to be tested by data on consumer expenditures for families of different composition, and on the distribution of children by age. We are not in a position to undertake such tests; and it may well be that our allowance understates the correct weight. But the combined results of both assumptions can be compared with data for Israel, available for households in 1968/69 and showing differential weights for "standard equivalent adults" for families of differing size, weights based on "consumption patterns obtained from the Family Expenditure Survey" (see Report of the Committee on Income Distribution and Social Inequality, Tel Aviv, 1971, Appendix A, pp. 38-39).

The following table is illuminating;

	Size of Family (Number of Persons)								
	1	2	3	4	5	6	7	8	9
Number of Standard Equivalent Adults per Family									
1. Israel	1.25	2.00	2.65	3.20	3.75	4.25	4.75	5.20	5.60
2. Assumption	1.00	2.00	2.5	3.0	3.5	4.0	4.5	5.0	5.5
Average Weight per person									
3. Israel	1.25	1.00	0.88	0.80	0.75	0.71	0.68	0.65	0.62
4. Assumption	1.00	1.00	0.83	0.75	0.70	0.67	0.64	0.625	0.61

As one can see, the differences, except those for 1 person families or households, are not large, particularly for the average per person in lines 3 and 4. Whatever difference there is, suggests a slight exaggeration in our conversion ratios, yielding slightly too low a number of standard consumer units. It would be of interest to have a similar comparison with weights for a less developed country, but the data are not at hand.

Three findings are suggested by the comparisons in Table 20. First, even with conversion to a per consumer unit base, the negative association between income per consumer unit and the size of the household is still observed, and without exceptions. Second, the significant decline in income per consumer unit begin higher on the rising scale of household size--beyond the three, and more, beyond the four person household; so that the lower income per consumer unit population groups are more concentrated among the larger households than is the case with lower income per person groups. Third, the amplitude of disparities in income per consumer unit, associated with differences in size of households, is narrower than of disparities in income per person for size-of-household classes.

Of these findings, the first, on persistence of the negative correlation between income per consumer and size of household (in number of consumer units) that is most relevant to the major conclusions of our text discussion. For it confirms the reversal in the sign of the association as we shift from a comparison of income per household with size of household, to a comparison of household income per person with size of household. And this means also confirmation of the shift in the internal structure of the distributions, of the location of households at lower and upper income levels, as we shift from the conventional size-distribution of income among households by income per household to a size distribution where households (and the population of per person, per consumer units within them) are grouped by income per person, per consumer unit, or, in general, per some less variable and hence more meaningful unit than a household.